```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                        Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and is derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     80
80
    109
103.5
109.5
93.5
92.5
91.5
91.5
90.5
90.5
90.8
90.8
90.8
90.8
90.8
90.8
                                                                                                                                                                                                                                                                                                                                                                                   Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | length:
| length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2
1119
1 AEVTASCTKRVESY
                                                                                                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        is the number of results predicted by chance to have a ster than or equal to the score of the result being printed. Trived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       10:
12:
13:
14:
15:
16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SPTREMBL 21:*
1: sp_archea:*
2: sp_bacteria:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               April 9,
                                                                                                                                                                                                                                                                                                                                                                                                          Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
    8.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.000 88.0000 88.000 88.000 88.000 88.000 88.000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0000 88.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AEVTASCTKRVESYNYLVDY.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sp_organelle:*
sp_phage:*
sp_plant:*
sp_virus:*
sp_virus:*
sp_vertebrate:*
sp_vrirus:*
sp_rvirus:*
sp_bacteriap:*
sp_archeap:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sp_invertebrate:*
sp_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sp_mhc: *
                                                                                                                                                                                                                                                                                                                                                                                   Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   fungi: *
                           426
2857
615
917
670
347
318
351
351
1091
1094
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2003, 14:27:20; Search time 86 Seconds (without alignments)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gapext 0.
                                                                                                                                                                                                                                                                                                                                                                                   B
      5516
                                                                                                                                                                                                                                                                      16
                                                                                                                                                                                                                                        Q9TUB5
Q8U919
Q9YOAO
                                                                Q8YW34
Q9UNF7
Q9L5E2
Q9PHJ0
Q9KMZ4
Q03956
Q9P9U2
Q8Y4J2
  Q9CTV9
Q9BP40
Q9U3B3
                                                                                                                                                                                                                                                                                                                                                                                   IJ
                                                                                                                                                                                                                                                                                                                Q8RFV5
Q989A5
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mode1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (without alignments)
522.305 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     671580
Q9y0a0 caenorhabdi
Q8yw34 anabaena sp
Q9unf7 homo sapien
Q915e2 salmonella
Q9phj0 xylella fas
Q9kmz4 vibrio chol
Q03956 saccharomyc
Q9p9u2 xylella fas
Q8y412 liseeria mo
Q9ctv9 mus musculu
Q9bp40 halocynthia
Q9u3b3 caenorhabdi
                                                                                                                                                                                                                                                                  Q989a5 rhizobium 1
Q9tub5 sus scrofa
Q8u9i9 agrobacteri
                                                                                                                                                                                                                                                                                                                                                                                 Description
                                                                                                                                                                                                                                                                                                                                     Q8rfv5 fusobacteri
```

4.4 4.5	43	42	41	40	39	38	37	36	35 5	34	ω ω	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
81.5 81.5	81.5	82	82	82	82	82	82.5	83	83	83	83	83.5	83.5	85	85.5	85.5	85.5	85.5	86	86.5	87	87	87.5	89	89	89	89
7.3									7.4	7.4	7.4	7.5	7.5	7.6	7.6	7.6	7.6	7.6	7.7	7.7	7.8	7.8	7.8	8.0	8.0	8.0	8.0
951 1548	308	2205	1446	1446	913	860	209	1313	1039	579	572	509	455	750	1290	507	446	271	1090	507	2933	304	932	2903	2892	2847	2846
ທຸ	16	ហ	2	N	11	17	16	16	N	10	10	4	17	13	4	Ŋ	4.	16	16	N	ស	16	11	s	ហ	ຫ	ഗ
Q9GLY4 Q8T9C5	Q9ZDD3	016857	Q9EZV3	Q9F0D0	Q9D7Z6	Q8TM25	Q9KN73	Q9PQ16	Q9FDG1	Q9FK07	Q9FRU2	075602	Q974G8	Q9W633	Q9UPZ6	Q99Q76	043384	90MX8Q	Q928J2	Q9AHP4	Q9GS15	Q8RG85	035802	Q95X75	Q9Y0A1	Q95X74	Q9Y0A2
Q9gly4 oryctolagus Q8t9c5 drosophila				Q9f0d0 xanthomonas	Q9d7z6 mus musculu	Q8tm25 methanosarc	Q9kn73 vibrio chol		Q9fdg1 xanthomonas				Q974g8 sulfolobus	w	,,		O43384 homo sapien	Q8xm06 clostridium	Q928j2 listeria in	Q9ahp4 clostridium	Q9gs15 caenorhabdi	Q8rg85 fusobacteri	O35802 rattus norv	-	Q9y0al caenorhabdi	Q95x74 caenorhabdi	Q9y0a2 caenorhabdi

## ALIGNMENTS

```
RESULT 1

ORREVES

ID ORREVES

AC ORREVES

AC ORREVES

AC ORREVES

DT 01-J

DT 01-J

DT 01-J

DT 01-J

DT 01-J

RO FNOS

OS FUSS

OS FUSS

OS FUSS

OS FUSS

AC ORREVES

AC OR
밁
                                                       S
                                                                                                                                                                  밁
                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C STRAIN-ATCC 25586;

X MEDLINE=21886394; PubMed=11889109;

X Kapatral V., Anderson I., Ivanova N., Reznik G., Los T., Lykidis A.,

X Kapatral V., Anderson I., Ivanova N., Reznik G., Zhu L.,

X Latecharyya A., Bartman A., Gardner W., Grechkin G., Zhu L.,

Yasieva O., Chu L., Kogan Y., Chaga O., Goltsman E., Bernal A.,

X Larsen N., D'Souza M., Walunas T., Pusch G., Haselkorn R.,

Yenstein M., Kyrpides N., Overbeek R.;

"Genome sequence and analysis of the oral bacterium Fusobacterium nucleatum strain ATCC 25586.";

I Bacteriol. 184:2005-2018 (2002).

EMBL; AB010569; AAL94772.1; -

R EMBL; AB010569; AAL94772.1; -

CX Oxidoreductase; Complete proteome.

SEQUENCE 369 AA; 40851 MW; 9727259C59BDC4AF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q8RFV5 PRELIMINARY; rr., Q8RFV5; Q8RFV5; Q1-JUN-2002 (TrEMBLrel. 21, Created) 01-JUN-2002 (TrEMBLrel. 21, Last sequence update) 01-JUN-2002 (TrEMBLrel. 21, Last annotation update) D-amino acid dehydrogenase large subunit (EC 1.4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=76856;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fusobacterium nucleatum (subsp. nucleatum).
Bacteria; Fusobacteria; Fusobacterium.
    78
                                                                                   77
                                                                                                                                                                      21
                                                                                                                                                                                                                                                              17
CGANELIYPI-GDLNVEGIEKALEPIQPTGWTSIAKSIEYGVEDLKALDG----EKTLN- 131
                                                                                                                                                                           VLDASGSMVKK--IGDKTMMEIAKESIKKVLSEMP-ANAKVGIRVFGHKGDNTASKKDES 77
                                                                                                                                                                                                                                                              LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                   CVAECAVNTIKSDLEIFG-----RLTPVG-----
                                                                                                                                                                                                                                                                                                                                                  l Similarity
46; Conserv
                                                                                                                                                                                                                                                                                                                                             9.7%; Score 109; DB 16; Length 369; larity 25.4%; Pred. No. 0.12; Conservative 25; Mismatches 72; Indels 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
1.4.99.1).
                                                                                   DGIKMHETVING 112
                                                                                                                                                                                                                                                                                                                                                      38;
                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                      7;
```

```
RESULT
Q9TUB5
ID Q9
AC Q9
DT 01
DT 01
DT 01
DT 01
DT 01
OE EP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OR BRADEN

RESULT

OR SHOP

OR
                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 47
                                                            Q9TUB5;
01-MAY-2000
01-MAY-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA Res. 7:331-338(2000).;
EMBL; AP003009; BAB52792.1;
InterPro; IPR002035; VWF_A.
SMART; SM00327; VWA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  "Complete genome structure Mesorhizobium loti.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kaneko T., Nakamura Y., Sato S., Asamizu E., Kato T., Sasamoto Watanabe A., Idesawa K., Ishikawa A., Kawashima K., Kimura T., Kishida Y., Kiyokawa C., Kohara M., Matsumoto M., Matsuno A., Mochizuki Y., Nakayama S., Nakazaki N., Shimpo S., Sugimoto M. Takeuchi C., Yamada M., Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=MAFF303099;
MEDLINE=21082930; PubMed=11214968;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rhizobium loti (Mesorhizobium loti)
Bacteria; Proteobacteria; alpha sub
Phyllobacteriaceae; Mesorhizobium.
  Sug
                        AECC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q989A5;
01-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q989A5
                                          Epithelial
                                                                                                                                                    Q9TUB5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=381;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  113
                                                                                                                                                                                                                                                                  177
                                                                                                                                                                                                                                                                                                        184
                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                              125
                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17
scrofa (Pig)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ດ-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----ILYIITDGIETCGGNPVEIAKQLKGENTNIVLGIIGFNVDANQNRLLKQIADAAG
                                                                                                                                                                                                                                                                                                        ONPAVCQEFVNSV
                                                                                                                                                                                                                                                                                                                                                                                                                                    QLIVPPQPGSASAITDAA-----DSLKFLGK-TPLTAAVKQAAEALKYTEDKATVVLITD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYS---
                                                                                                                                                                                                                                                                DEKALQEALVETV
                                                                                                                                                                                                                                                                                                                                                   GLETCGGDPCALGKELKASGVDFTADVVGFGLTADEGKQI--ACLAENTGGKYI---
                                                                                                                                                                                                                                                                                                                                                                                         GHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDA-EGKAIIDQIVALNSGSVLVDGLQLL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --VIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINQMPPQAAVILLTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ILDASGSMWAQ--IDGKPKLEIÄRESLRTVLQSVPADDEIG----FMAYGHREKGSCDDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 Similarity
47; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PS50234; VWFA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TrEMBLrel. 18, 1 (TrEMBLrel. 18, 20, 20)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                al protein;
537 AA; 56
                                          chloride
                                                              (TrEMBLrel.
                                                                                                         (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                      PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein
                                                                                                                                                                                                                                                                189
                                          channel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56251 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mlr6511.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Complete
                                                              13,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last annotation
                                                              Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                         Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 109; DB Pred. No. 0.2; 4; Mismatches
                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                proteome.
769768F08D59FFC6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  subdivision; Rhizobiaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ± 109;
0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nitrogen-fixing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               537
                                                                                                                                                      917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                    ₿
                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        symbiotic bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sugimoto M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       537;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            186
                                                                                                                                                                                                                                                                                                                                                                                           183
                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
```

```
RESULPT
OR 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOUR REPRESENTATION OF THE PROPERTY OF THE PRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q8U9I9;
Q8U9I9;
                                    Science [2]
                                                                                                                                                                                                 MEDIINE=21608550; PubMed=11743193;
Wood D.W., Setubal J.C., Kaul R., Monks D.E., Kitajima J.P.,
Okura V.K., Zhou Y., Chen L., Wood G.E., Almeida N.F. Jr., Woo I
Chen Y., Paulsen I.T., Eisen J.A., Karp P.D., Bovee D. Sr.,
Chapman P., Clendenning J., Deatherage G., Gillet W., Grant C.,
Kutyavin T., Levy R., Li M.-J., McClelland E., Palmieri A.,
Kutyavin T., Levy R., Li M.-J., McClelland E., Palmieri A.,
Raymond C., Rouse G., Saenphimmachak C., Wu Z., Romero P., Gordc
Zhang S., Yoo H., Tao Y., Biddle P., Jung M., Krespan W., Perry
Gordon-Kamm B., Liao L., Kim S., Hendrick C., Zhao Z.-Y., Dolan
Chumley F., Tingey S.V., Tomb J.-F., Gordon M.P., Olson M.V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-JUN-2002 (TrEMBLrel. 01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TIGRFAMS; TIGRO0868; hCaCC; 1.
PROSITE; PS00153; ATPASE GAMMA;
PROSITE; PS50234; VWFA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         porcine ileal enterocytes. Physiol. Genomics (Online)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Phosphoglycerate kinase.
PGK OR ATU3739 OR AGR_L_2193.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMART; SM00327; VWA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; AF095584; AAF00077.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=20473747; PubMed=11015605;
Gaspar K.J., Racette K.J., Gordon J.R., Loewer
"Cloning a chloride conductance mediator from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=ILEAL MUCOSA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=9823;
   SEQUENCE
                                                                                                                                                                           Chumley F., Tingey Nester E.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacteria; Proteobacteria; alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Agrobacterium tumefaciens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Rhizobiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=176299;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR000131; ATPase
InterPro; IPR004727; CaCC_pi
InterPro; IPR002035; VWF_A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38 LAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNSCVAECAVNTIKSDL-----
                                                                                                                                   genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          QRSIQLESQGLTLQNN--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               --SVLVD--GLQLLQNPAVCQEFVNSVFCQEQ-----ILVTEEVVVLRGVNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QNGAIIHTVALGPSAAKELEELSOMTGGLQTYA---SDQAENNGLIDAFGALSSGNRAAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ERDALARSLPTAASGGTSICSGLRSAFTVIKKKYPTDGSEIVLLTDGEDNTISACFPEVK 426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --EIFGRLTP-----VGDGIKMHETVINQMPPQ--AAVILLTDGHNN----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LDKSGSMTVGGRLKRLNQAGKLFLLQ----TVEQGAWVGMVAFDSAAYVKSELVQINSAA 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         917 AA;
                                                                                                                                          of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rhizobium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LGMNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSG-----
                                                                                                                                          natural genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         100735 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21.4%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               prot1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 - EWMNGTVVVDSTVGKDTLFLITLERKFLSPIPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (strain C58 / ATCC alpha subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3:101-111(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 1.2
); Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 103.5; | Pred. No. 1.2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    UNKNOWN_1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         649F41944F7EAD19 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence update)
                                                                                                                                          engineer Agrobacterium tumefaciens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Loewen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   33970).
Rhizobiaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .π
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              apical membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Forsyth
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       917;
                                                                                                                                                                                                                                             Perry M.,
Dolan M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   group;
                                                                                                                                                                                                                                                                                                                      Gordon D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ဂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .Σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     10;
```

```
RESULT ON THE COLUMN TO SERVICE OF THE COLUMN 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Ma
Best Loc
Matches
                                                                                                               SEQUENCE NZ;
STRAIN-BRISTOL NZ;
Stellyes L., Johnson F
Stellyes L., Johnson F
Stellyes L., Johnson F
                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-BRISTOL N2;
MEDLINE-20079510; PubMed-10610772;
MEDLINE-20079510; PubMed-10610772;
Baylis H.A., Furuichi T., Yoshikawa F., Mikoshiba K., Sattelle
"Inositol 1,4,5-trisphosphate Receptors are strongly expressed
nervous system, pharynx, intestine, gonad and excretory cell of
Caenorhabditis elegans and are encoded by a single gene (itr-1)
J. Mol. Biol. 294:467-476(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Genome sequence of the plant pathogen Agrobacterium tumefaciens CS8."; Science 294.2323-2328(2001).
EMBL; AE009304; AAL44549.1; ALT_INIT.EMBL; AE008309; AAK89667.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Goodner B., Hinkle G., Gattung S., Miller N., Blanchard M., Qurollo B., Goldman B.S., Cao Y., Askenazi M., Halling C., Mullin L. Houmiel K., Gordon J., Vaudin M., Iartchouk O., Epp A., Liu F., Wollam C., Allinger M., Doughty D., Scott C., Lappas C., Markelz B., Flanagan C., Crowell C., Gurson J., Lomo C., Sear C., Strub G., Cielo C., Slater S.;
                                                                                                                                                                                                                                                "Genome sequence of the nematode C. elegans: a investigating biology. The C. elegans Sequencin Science 282:2012-2018(1998).
                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A. STRAIN=BRISTOL N2; MEDLINE=99069613;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-NOV-1999 (TrEMBLrel. 12,
01-NOV-1999 (TrEMBLrel. 12,
01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditidae; Peloderinae; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Inositol 1,4,5-trisphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9YOA0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=6239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Caenorhabditis elegans.
                          STRAIN-BRISTOL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=21608551;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TR-1 OR F33D4.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VAKONDGDIL-----LLENTRFHKGEEKNDPAFVEELAANGDIYVNDAF 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YSVIIPQGSWNSCVAECAVNTIKSDLEIFGRL----TPVGDGIKMHETVINQMPPQ 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IVALNSGSVLVDGLQLLQN-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ILELSSKGAKVILLAHFGRPKG-EPVAEMSLSQIVPTVEDVLDHAISFATDCIGAPAADA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HSMVRPELATNODRPMPAFKTIDDLNDIAGKRVLVRVDLNVPVADGKVTDATRIERVAPT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AAVILLTDGHNNLGMNPVEE--VKSIYQTNPNVCFHVVSFADDAEGKAIIDQ 166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Complete
                                                                                                    (DEC-1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   426 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           proteome.
                                                                                                                                                                                                                                                                                                                                                          PubMed=9851916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=11743194;
                                                                                                                            elegans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44659 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8.8%;
                                                                                                    ő
                                                                                                                                                      ø
                                                                                                    the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence update)
Last annotation update)
e receptor (Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 99; DB 1
Pred. No. 1.1;
18; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                    EMBL/GenBank/DDBJ
                                                                                                                            cosmid F33D4.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4CC9DA178FEBD974 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -PAVCQE-----FVNSVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2857
                                                                                                                                                                                                                                                                           legans: a platform
Sequencing Consort
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and biotechnology agent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rhabditida; Rhabditoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63;
                                                                                                    databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 426
                                                                                                                                                                                                                                                                             Consortium.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                327.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           d M.,
C., Mullin L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              42;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7;
```

```
AC OS SON DE RESERVA D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S KWR DR R DR R DR R T
Query Match
Best Local S
Matches 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query
Best L
                                                                                                                                                                                                                                                       Matanabe A., Iriguchi M., Matsumoto M. Kishida Y., Kohara M., Matsumoto M. Nakazaki N., Shimpo S., Sugimoto M. Yasuda M., Tabata S.;
"Complete genomic sequence of the
                                                                                                                                                                                                                                                                                                                      NCBI_Taxiu---.
[1]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE=21595285; PubMed=11759840;
MEDLINE=21595285; PubMed=11759840;
MEDLINE=21595285; PubMed=11759840;
MEDLINE=21595285; PubMed=11759840;
Markaneto M., Markaneto M., Markaneto M., Markaneto M., Markaneto M., Tak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QBYW34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (OCT-2001) to the EMBL/GenBank/DDBJ databases.
EMBL; A7243182; CAB45863.1; -.
EMBL; AF036702; AAK63955.1; -.
InterPro; IPR000699; Ca-rel_channel.
InterPro; IPR001682; Ca/Na_pore.
InterPro; IPR001682; Ca/Na_pore.
InterPro; IPR000493; Insp3_receptor.
InterPro; IPR000493; Insp3_receptor.
InterPro; IPR000363; M+channel_nlg.
InterPro; IPR000368; M+channel_nlg.
                                                                                      PROSITE; PS50234; VWFA; 1.
Hypothetical protein; Complete
SEQUENCE 615 AA; 66973 MW;
                                                                                                                                                                            EMBL; AP003587; BAB73481.1; InterPro; IPR002035; VWF_A. Pfam; PF00092; vwa; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF00520; ion_trans; 1.
Pfam; PF02815; MIR; 2.
Pfam; PF01365; RYDR_ITPR; 2.
                                                                                                                                                                                                                                                cyanobacterium Anabaena
DNA Res. 8:205-213(2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Anabaena sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hypothetical
SEQUENCE 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRINTS; PR00779; INSP3R
SMART; SM00472; MIR; 3.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STDALPPEVALVEPILRVLQLLCENHNSLLQNFLR--KQSDRTNHNLVSETLSF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VINQMPPQAAVI-----LLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDAEG 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NYLVDYSGSMMKHVAVREP----KIELA----KEAILKINAAMPKMS------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KAIIDQIVALNSGSVLVDG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----YQGGLYTFAPYSVIIPQGSWNSCVAECAVNTIKSDL-EIFGRLTPVGDGIKMHET 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NDKVQHSFYMRMKQKDIHEPFFKAILTRIQTAQNRLKSDMMSCSDSKPKVSSTVLTPLID 1980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGDTGFNGALFE-----VPQQVRHPSISE--MSQLSNDLTHSIPDLAPYQD----EEK 2027
                                                                                                                                                          SM00327; VWA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -LDTVCGSTKGSLGVFGEIGEHNFSLITQTLATLTEFCQGP--CHENQNTMAMQE
                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submission.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sp. (strain PCC 7120).
Cyanobacteria; Nostocales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (TrEMBLrel. 20, Create
(TrEMBLrel. 20, Last s
(TrEMBLrel. 21, Last a
d protein All1782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        il protein;
2857 AA;
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INSP3RECEPTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.
ITPR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8.4%;
21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Receptor.
327195 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36;
                                                                                                                                                                                                                                                                                             of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 93.5
Pred. No.
                                                                                                                                                                                                                                                                     strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                     Score 92.5;
Pred. No. 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                                                                      proteome.
35886FE9D1C86018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8B991F12BEC94E2F CRC64;
                                                                                                                                                                                                                                                                                        filamentous
                                                                                                                                                                                                                                                                     PCC
                                                                                                                                                                                                                                                                                                                                                                                                        Kuritz
                                                                                                                                                                                                                                                                                                                                Matsuno A., I
Takazawa M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nostocaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         44;
                                                                                                                                                                                                                                                                     7120.";
                                                                                                                                                                                                                                                                                                                                                                              Kawashima
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₿
                                                                                                                                                                                                                                                                                                                                                                                                      13
                                              DВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LOLLONPAVCOEFVNSVFCOE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                         , Sasamoto S.,
shima K., Kimura T.,
o A., Muraki A.,
o A., Vamada M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            update)
                                            16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               72;
  90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>ن</u>
                                                                                                                                                                                                                                                                                          nitrogen-fixing
                                                                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nostoc
                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2857;
                                            615;
  37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               200
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     54
  10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12;
```

```
RESULT 8
Q9L5E2
ID Q9L5
AC Q9L5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 7
20 YUNF7
110 Q9UN
AC Q9UN
DT 01.-V
DT 0
                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                    밁
                                                                                                                                                                                            S
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q9UNF7
Q9UNF7;
Q9UNF7;
Q9UNF7;
Q9UNF7;
Q1-MAY-2000 (TrEMBLrel. 13, C)
Q1-MAY-2000 (TrEMBLrel. 21, L)
Q1-JUN-2002 (TrEMBLrel. 21, L)
Q1-JUN-2002 (TrEMBLrel. 21, L)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
  Q9L5E2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE-99364503; PubMed=10437792;
Agnel M., Vermat T., Culouscou J.M.;
"Identification of three novel members of the calcium-dependent chloride channel (CaCC) family predominantly expressed in the digestive tract and trachea.";
FEBS Lett. 455:295-301(1999).
EMBL; AF127035; AAD48398.1; -.
InterPro; IPR004727; CaCC prot1.
InterPro; IPR004727; CaCC prot1.
InterPro; IPR002035; VWF_A.
Pfam; PF00092; vwa; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TIGRFAMs;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TISSUE=COLON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118
                                                                                                                                                                                                                                                                                                                                                   346
                                                                                                                                                                                                                                                                                                                                                                                                                                               310
                                                                                                                                                      459
                                                                                                                                                                                                  156
                                                                                                                                                                                                                                                  402
                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        29
                                                                                                                                                                                                                                                                                                                                                                                                 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LYTFAPYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDG-IKMHETVINQMPPQA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INRVLLLTDGHANMGIQDPKILTATSTQKAEEGITTTTLGFAQGFNEDLLIGMARAANGN 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VYDDAVDTVVPPQPVTDKPALKKSIRQVRA----
                                                                                                                                                 YVSDEAQNNGLÍDAFGALTSGN
                                                                                                                                                                                                                                               QLDGSEVLLLTDGEDNTASSCIDEVK--
                                                                                                                                                                                                                                                                                                Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA----
                                                                                                                                                                                                                                                                                                                                                   MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY --
                                                                                                                                                                                                                                                                                                                                                                                              CV------DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                  VLDKSGSMG-----TVENGSWVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FYFIQSIDEAAEVFSIELDSLRSVVGQNLKVTLELADGI 233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         --AVILLTDGHNNLGMN--PVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ÀEIPES-PRRNLNLSLVIDRSGSMAGAALHHALK----AAESV--VDQLEPKDILSVV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AEVTASCTKRVESYNYLVDYSGSM--MMKHVAVREPKIELAKEAILKINAAMPKMSYQGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SM00327; VWA; 1.
MS; TIGR00868; hCaCC; 1.
E; PS50234; VWFA; 1.
CE 917 AA; 101153 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46;
                                                                                                                                                                                                  DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8.2%;
ilarity 22.8%;
Conservative 2
                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -SATADGIGIT--ÖNBVACGELANSA 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          channel protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                    480
                                                                                                                                                                                                  174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 91.5;
Pred. No. 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EA01090D781BEB95
                                                                                                                                                                                                                                                  QSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    917
                              670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GGITNLSGGWLKGCEYVKHQLDPQK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                 -PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   917;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               76
                                                                                                                                                                                                                                                                                                                                                   401
                                                                                                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   œ
```

```
밁
                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                  á
                                                                                                                                                                             RESULT
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=CT18; PLASMID=PHCM1;

MEDLINE=21534947; PLASMID=BHCM1;

Parkhill J, Dougan G, James K.D., Thomson N.R., Pickard D., Wain J

Parkhill J, Dougan G, James K.D., Holden M.T.G, Sebaihia M.,

Churcher C., Mungall K.L., Bentley S.D., Holden M.T., Connerton P.,

Baker S., Basham D., Brooks K., Chillingworth T., Connerton P.,

Cronin A., Davis P., Davis R.M., Dowd L., White N., Farrar J.,

Cronin A., Davis P., Davis R.M., Hien T.T., Holroyd S., Jagels K.,

Feltwell T., Hamlin N., Haque A., Hien T.T., Holroyd S., Jagels K.,

Krogh A., Larsen T.S., Leather S., Moule S., O'Gaora P., Parry C.,

Quail M., Rutherford K., Simmonds M., Skelton J., Stevens K.,

Whitehead S., Barrell B.G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-20280091; PubMed=10773089; Sherburne C.K., Lawley T.D., Gilmour M.W., Grotbeck E., Rose D.J., Taylor D.E.; "The complete DNA sequence and analysis of from Salmonella typhi that is temperature sometic Acids Res. 28:2177-2186(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-OCT-2000 (TrEMBLrel. 15, Created)
01-OCT-2000 (TrEMBLrel. 15, Last sequence update)
01-UN-2002 (TrEMBLrel. 21, Last annotation update)
Orf, hypothetical protein (Hypothetical 73.9 kDa pr)
R0206 OR HCM1.116.
                                                                                     01-OCT-2000 (TrEMBLrel.
01-OCT-2000 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           SMART; SMO0327; VWA; 1.

PROSITE; PS50234; VWFA; 1.

Hypothetical proteoin; Plasmid; Complete proteome.

SEQUENCE 670 AA; 73863 MW; 11E55C346E620E66 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; AF250878; AAF70042.1; -.
EMBL; AL513383; CAD09713.1; -.
Interpro; IPR002035; VWF_A.
Pfam; PF00092; vwa; 1.
SMART; SM00327; VWA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Complete genome sequence of a multiple drug resistant Salmonella enterica serovar Typhi CT18.";
Nature 413:848-852(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Proteobacteria;
                                                           XFA0015
                                                                         Conjugal transfer
                                                                                                                                  Q9РНJ0;
                                                                                                                                                Q9PHJ0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLASMID=R27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=601;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Plasmid R27,
 xylella
                             Plasmid pXF51.
                                            Xylella fastidiosa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2
               Bacteria;
                                                                                                                                                                                                                        616
                                                                                                                                                                                                                                                                                                                                             506
                                                                                                                                                                                                                                                     135
                                                                                                                                                                                                                                                                                  556
                                                                                                                                                                             ø
                                                                                                                                                                                                                                                                                                                                                                        19
                                                                                                                                                                                                                                                                                                                77
                                                                                                                                                                                                                          NDVFSVAESN-----
                                                                                                                                                                                                                                                    EEVKSIYQTNPNVCFHVVSFADDAEGKAI-IDQIVALNSGS-VLVDGLQLLQN 185
                                                                                                                                                                                                                                                                                  TFDENAEEKLSKFSLGCKGNNTPTGSALNAALELLLESQFDRKIVFLITDGYPTESAYTI
                                                                                                                                                                                                                                                                                                                CVAECAVNTI-KSDLEIFGRLTPVGDGIKMH-ETVINOMPPQAAVILLTDGHNNLGMNPV 134
                                                                                                                                                                                                                                                                                                                                           DISGSMSLEHRYIHAIKTDLALTLAIE---AISKMHVANVIYPFVDKDFEVI--
                                                                                                                                                                                                                                                                                                                                                                        DYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFA--PYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A.
               Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and Plasmid
                                            .. 15,
Lel. 15, Lau
Lrel. 21, Lr
Lr protein.
                                                                                                                                                                                                                                                                                                                                                                                                                  8.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pHCM1.
                                                                                                                                                                                                                          -GIEIAGVGIKTDVLMGFNEGTFVNVDDISLLPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gamma
               gamma
                                                                                                                                                                                                                                                                                                                                                                                                    26;
                                                                                     Last sequence update)
Last annotation update)
                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                   Score 91;
Pred. No.
                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       subdivision;
                subdivision;
                                                                                                                                                   347
                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E R27, a large IncHI plasm:
sensitive for transfer.";
                                                                                                                                                                                                                                                                                                                                                                                                                                   16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Blattner
                                                                                                                                                                                                                                                                                                                                                                                                       77;
                Xanthomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein)
                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   F.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                      670;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IncHI plasmid
                group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Burland V.,
                                                                                                                                                                                                                                                                                                                                                                                                       26;
                                                                                                                                                                                                                           658
                                                                                                                                                                                                                                                                                                                                             ----K 555
                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4:
```

```
RESULT
Q9KMZ4
ID Q9KMZ4
AC Q9
AC Q9
DT 01
DT 01
DT 01
DT VC
COS V1
OC Ba
OX NC
                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RA Simpson A.J.G., Reinach F.C., Arruda P., Abreu F.A., Acencio M.,
RA Alvarenga R., Alves L.M.C., Araya J.E., Baia G.S., Baptista C.S.,
RA Barros M.H., Bonaccorsi E.D., Bordin S., Bove J.M., Briones M.R.S.,
RA Barros M.H., Bonaccorsi E.D., Bordin S., Bove J.M., Briones M.R.S.,
RA Bueno M.R.P., Camargo A.A., Camargo L.E.A., Carraro D.M., Carrer H.,
RA Colauto N.B., Colombo C., Costa F.E., Costa M.C.R., Costa-Neto C.M.,
RA Colauto N.B., Colombo C., Costa F.E., Costa M.C.R., Costa-Neto C.M.,
RA Colauto N.B., Colombo C., Costa F.E., Costa M.C.R., Costa-Neto C.M.,
RA Fraga J.S., Franca S.C., Franco M.C., Frohme M., Ferro J.A.,
RA Fraga J.S., Franca S.C., Franco M.C., Frohme M., Furlan L.R.,
RA Fraga J.S., Franca S.C., Franco M.C., Frohme M., Furlan L.R.,
RA Krieger J.E., Kuramae E.E., Laigret F., Lambais M.R., Lette L.C.C.,
RA Machado M.A., Madeira A.M.B.N., Madeira H.M.F., Marchado J.A.,
RA Marques M.V., Martins E.A.L., Martins E.M.F., Matsukuma A.Y.,
RA Manni A. Jr., Nobrega F.G., Nunes L.R., Oliveiro Vitorello C.B.,
RA Moon D.H., Nagai M.A., Nascimento A.L.T., O. Netto L.E.S.,
RA Moon D.H., Nobrega F.G., Nunes L.R., Oliveira M.A.,
RA de Oliveira M.C., de Oliveira R.C., Palmieri D.A., Paris A.,
RA de Souza A.D., Pereira G.A.G., Pereira H.A. Jr., Pesquero J.B.,
RA de Rosa V.E. Jr., de Sa R.G., Santelli R.V., Sawasaki H.E.,
RA de Solva A.C.R., da Silve A.M., da Silva F.R., Silva W.A. Jr.,
RA de Solva A.C.R., da Silve A.M., J.S., Setubal J.C.,
RA Capo M.A., Van Sluys M.A., Verjovski Almeida S., Vettore A.L.,
RA Zago M.A., Zatz M., Meidanis J., Setubal J.C.,
"The cenome semience of the plant pathogen Xiella fastidiosa":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                      01-OCT-2000
01-OCT-2000
01-MAR-2002
Vibrio cholerae.
Bacteria; Proteobacteria;
NCBI_TaxID=666;
                                                                                                                                         Q9KMZ4;
                                                                                                                                                           Q9KMZ4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "The genome sequence of the plant Nature 406:151-159(2000).

EMBL; AE003951; AAF85584.1; -.
InterPro; IPR001482; GSPII E.
Pfam; PF00437; GSPII E; 1.
ProDom; PD000739; GSPII E; 1.
                                                      Hypothetical VCA0172.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Complete proteome
SEQUENCE 347 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=20365717;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                304
                                                                                                                                                                                                                                                                                178
                                                                                                                                                                                                                                                                                                                 246
                                                                                                                                                                                                                                                                                                                                                   138
                                                                                                                                                                                                                                                                                                                                                                                     193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=2371;
                                                                                                                                                                                                                                                                                                                                                                                                                                                        144
                                                                                                                                                                                           10
                                                                                                                                                                                                                                                                                                                                                                                                                        78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18
                                                                                                                                                                                                                                                                              DGLQLLQNPAVCQEFVNSVFCQEQILVTEEVVV
                                                                                                                                                                                                                                                                                                                                                 KSIYQTNPNVCFHVVSFADDA----
                                                                                                                                                                                                                                                                                                                                                                                                                VAECAVNTIKSDLEIFGRLTPVGDGIKWHETVINQMPPQAAVILLTDGHNNLGMNPVEEV 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                    VDASGTLHPYEVEL----LALKKSNRIK---EFLKLAMQHGL----TLVIVGKTGSGKTT 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNSC 77
                                                                                                                                                                                                                                                                                                               ASCLRMKPDRILLTEMRGDEAWEFVKAVGSGHPGISTAHAGGALEAFDQIVALIKDS--A 303
                                                                                                                                                                                                                                                                                                                                                                                  IGKSITNCIPTD----ERLVTVED----VHEMFLNHHPNKVHLFYSRDGEGSLSINPKQAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 Similarity
47; Conser
                                                                                    (TrEMBLrel.
(TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PubMed=10910347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                38430 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8.1%;
22.1%;
                                                                                                                                                                                                                                              -DAAYIKKRVFETVDIVL
                                                                      VCA0172.
                                                                                      15,
15,
20,
                  gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           35;
                                                                                   Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 90.5; DI
Pred. No. 5.1;
35; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D1012D3336C5D9F0 CRC64;
                  subdivision; Vibrionaceae; Vibrio.
                                                                                   sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pathogen
                                                                                                                                                         318
                                                                                                                                                                                                                                                                              210
                                                                                                                                                         ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xylella
                                                                                                                                                                                                                                                                                                                                              EGKAI--IDQIVALNSGSVLV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     fastidiosa.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                  245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         9
```

```
RESULT 11
Q03956
                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
 Matches
              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [1]
SEQUENCE FROM N.A.
SEROTYPE 01;
STRAIN=EL TOR N16961 / SEROTYPE 01;
MEDLINE=20406833; PubMed=10952301;
Heidelberg J.F., Eisen J.A., Nelson W.C., Clayton R.A., Gwinn M.L.,
Dodson R.J., Haft D.H., Hickey E.K., Peterson J.D., Umayam L.A.,
Gill S.R., Nelson K.E., Read T.D., Tettelin H., Richardson D.,
Gill S.R., Nelson K.E., Read T.D., Tettelin H., Dragoi I., Sellers P.
Ermolaeva M.D., Vamathevan J., Bass S., Qin H., Dragoi I., Sellers P.
McDonald L., Utterback T., Fleischmann R.D., Nierman W.C., White O.,
Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Venter J.C.,
Salzberg S.L., Smith H.O., Colwell R.R., Mekalanos J.J., Venter J.C.,
Fraser C.M.;
                                                                                                                                                                                                                                                                                                                                              Q03956;
Q03956;
                                                                                                                                                                                                                                         Saccharomyces cerevisiae (Baker's yeast).

Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;

Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                   Hypothetical SEQUENCE 3
                                                                           EMBL; Z48784; CAA88714.1; SGD; S0002610; RAV2.
                                                                                                    Barrell B., Rajandream M.A., Submitted (MAR-1995) to the
                                                                                                                             STRAIN=AB972
                                                                                                                                                                  Oliver K., Harris D.
Submitted (MAR-1995)
                                                                                                                                                                                                                                                                                            Hypothetical 40.0 kDa
                                                                                                                                                                                                                                                                                                          01-JUN-2002
                                                                                                                                                                                                                                                                                                                     01-NOV-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PROSITE; PS50234; VWFA; 1.

Hypothetical protein; Complete
SEQUENCE 318 AA; 35753 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00092; vwa; 1.
SMART; SM00327; VWA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nature 406:477-483(2000).
EMBL; AE004357; AAF96085.1;
TIGR; VCA0172; -.
                                                                                                                                          SEQUENCE
                                                                                                                                                                                            STRAIN=AB972;
                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                            NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           InterPro; IPR002035; VWF_A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116
                                                                                                                                                                                                                                                                                                                                                                                                                          248
                                                                                                                                                                                                                                                                                                                                                                                                                                                   159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA sequence of both chromosomes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     58
                                                                                                                                                                                                                                                                                  OR YDR202C.
                                                                                                                                                                                                                                                                                                                                                                                                                          DEKTL - - QTIATTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                   EGKAIIDQIVALNSG 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QRVMILLSDGSNTAGVLDPLEAANIAKQYNTTIYTVGVGAGEMVVKDFLFSRKVNTAQDL 247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   QAAVILLTDGHNNLG-MNPVEEVKSIYQTNPNV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GLILFADHAYLQTPLTLDRQTVANQLNQTV---LKLIGTQTAIGEGIGLATKTFIDSDAP 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GLYTFAPYSVI-IPQGSWNSCVAECAVNTIKSDLBIFGRLTPVGDGIKM-HETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36;
              Similarity
                                                                                                                                         FROM N.A.
                                                   351 AA; 4
                                                                                                                                                                                                                                                                                                      (TremBLrel. 01, Created)
(TremBLrel. 01, Last seq
(TremBLrel. 21, Last ann
  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                            PRELIMINARY;
                                                   40017 MW;
             8.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8.0%;
26.7%;
                                                                                                                                                                   ç
                                                                                                                                                                                                                                                                                                                                                                                                                          260
                                                                                                                                                                                                                                                                                            protein.
                                                                                                                                                                   the
  35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22;
                                                                                                    , Walsh S.V.;
EMBL/GenBank/DDBJ
                                                                                                                                                                   EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 90;
Pred. No.
              Score 90;
Pred. No.
                                                   0194C41FBF3819E9 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             proteome.
06565A71FA8C6252
 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                         sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the
                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cholera
                                                                                                                                                                                                                                                                                                                     update)
                         ω
•-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16;
                                                                                                                                                                                                                                                                                                      update)
 69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              53
                                                                                                     databases
                                                                                                                                                                   databases
                         Length 351;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pathogen Vibrio
 Indels 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -CFHVVSFADDA 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24;
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ۳.,
 12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6
```

S

16 YLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75

```
RESULT 12
Q9P9U2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
      ACCOMENS AND DESCRIPTION OF THE PROPERTY OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                             RA Simpson A.J.G., Reinach F.C., Arruda P., Abreu F.A., Acencio M., RA Alvarenga R., Alves L.M.C., Araya J.E., Baia G.S., Baptista C.S., Ra Bairos M.H., Bonaccorsi E.D., Bordin S., Bove J.M., Briones M.R.S., RA Barros M.H., Bonaccorsi E.D., Bordin S., Bove J.M., Briones M.R.S., RA Bueno M.R.E., Camargo A.A., Camargo L.E.A., Carraro D.M., Carrer H., RA Colauto N.B., Colombo C., Costa F.F., Costa M.C.R., Costa-Neto C.M., RA Colauto N.B., Cristofani M., Dias Neto E., Docena C., El.Dorry H., Facincani A.P., Ferreira A.J.S., Ferneco M.C., Frohme M., Furlan L.R., RA Fraga J.S., Franca S.C., Franco M.C., Frohme M., Furlan L.R., RA Fraga J.S., Franca S.C., Franco M.C., Frohme M., Furlan L.R., RA Fraga J.S., Kuramae E.E., Laigret F., Lambais M.R., Leite L.C.C., RA Cemper J.B., Kuramae E.E., Laigret F., Lambais M.R., Leite L.C.C., RA Marchado M.A., Madeira A.M.S.N., Madeira H.M.F., Marchado J.A., RA Marques M.V., Martins E.A.L., Martins E.M.F., Matsukuma A.Y., RA Marques M.V., Martins E.A.L., Martins E.M.F., Matsukuma A.Y., RA Mangues M.N., Nabacimento A.LT. Jo., Netto L.E.S., Nhani A. Jr., Nobrega F.G., Nunes L.R., Oliveira M.A., Paris A., Percira G.A.G., Pereira H.A. Jr., Pesquero J.B., RA de Oliveira M.C., de Oliveira R.C., Palmieri D.A., Paris A., Paris A., Percira G.A.G., Pereira H.A. Jr., Pesquero J.B., RA de Solve J.E., Silve A.M., da Silva F.R., Silva M.A., J. Setubal J.C., Sawasaki H.E., de Souza A.P., Terenzi M.F., Truffi D., Tsai S.M., Tsuhako M.H., RA Vallada H., Van Sluys M.A., Verjovski-Almeida S., Vettore A.L., RA Can Genome Remience of the Diant pathogen Xvella fastidiosa."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-OCT-2000 (TrEMBLrel. 15,
01-OCT-2000 (TrEMBLrel. 15,
01-MAR-2002 (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                       Vallada H., Van -
Vallada H., Zatz M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9P9U2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=20365717; PubMed=10910347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xylella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xylella fastidiosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Hypothetical protein
Pfam; PF01522; Polysac deacet; 1.

PROSITE; PS00018; EF_HAND; UNKNOWN 1.

Hypothetical protein; Complete proteome.

SEQUENCE 903 AA; 101108 MW; E0A31EC7A6A1A8CC CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |:||:
YIVDF--
                                                                                                                                                                                                                      genome sequence of the plant re 406:151-159(2000).
AE004083; AAF85564.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DGHNNLGMNPVEEVKSIYQTNPNVC---FHVVSF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ADDAEGKAIIDQI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PEDNNFAM-----KEMFODCYSVCESTAHILGLELTLCRNELCIELRNLIKVTKKPWCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SCVAECAVNTIKSDLEIFGRLTPVGD------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ITLPEAQELLRRGVTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ILVTE-EVVVLRGVNF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IDSKTGRSFCDQIRNQVTNERNKTLSKILSENGVQVQDSTLLNH-----IISSFQSEA
                                                                                                                               IPR002048; EF-hand.
IPR002509; Polysac_deacet
IPR001440; TPR.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -LKNILEILNQLQVATDVSEFVSKFGVAMELLNHSLILLQNPPRD---LVF 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -HIVVRFPQFQRGKQVMFRMNTGLNFLLIQ-----FSKIMTH----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X£2779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -VALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         subdivision; Xanthomonas group;
                                                                                                                                                                                                                                                                                             pathogen Xylella fastidiosa.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GIKM----HETVINOMPPOAAVILLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11111111111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              231
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 13
             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 54
                                                                                                 Query Match
Best Local S
Matches 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q8Y4J2;
01-MAR-2002
01-MAR-2002
                                                                                                                                                                                                                                                                    Glaser P., Frangeul L., Buchrieser C., Rusniok C., Amend A.,
Baquero F., Berche P., Bloecker H., Brandt P., Chakraborty T.,
Charbit A., Chetouani F., Couve E., de Daruvar A., Dehoux P.,
Domann E., Dominguez-Bernal G., Duchaud E., Durant L., Dussurget O.,
Entian K.-D., Fsihi H., Garcia-del Portillo F., Garrido P.,
Gautier L., Goebel W., Gomez-Lopez N., Hain T., Hauf J., Jackson D.,
Jones L.-M., Kaerst U., Kreft J., Kuhn M., Kunst F., Kurapkat G.,
Madueno E., Maitournam A., Mata Vicente J., Ng E., Nedjari H.,
Nordsiek G., Novella S., de Pablos B., Perez-Diaz J.-C., Purcell R.,
Remmel B., Rose M., Schlueter T., Simoes N., Tierrez A.,
Vazquez-Boland J.-A., Voss H., Wahland J., Cossart P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Firmicutes; Bacillus/Clostridium
                                                                                                                                                       ListiList; LMO02446; -.
InterPro; IPR000322; Glyco hydro 31.
Pfam; PF01055; Glyco hydro 31; 1.
Hypothetical protein; Complete prote
SEQUENCE 1091 AA; 121698 MW; 55F
                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=EGD-E / SEI
MEDLINE=21537279;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q8Y4J2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Listeria monocytogenes
                                                                                                                                                                                                                               Science 294:849-852(2001).
EMBL; AL591983; CAD00524.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      112
                                                                                                                                                                                                                                                          'Comparative genomics of Listeria species.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  289
                                         743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57
              72
                                                                     21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QRIHEDIDALNQIERNYNQEITRLSIPFDRNRGIFIKREKWDDYVAHLRRSYTRKMILHD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALLASGAPSRFDTLTVILDYIESSPDLYDADRLAFREALNDL--DARINHDSALPAIKLR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AEVTASCTKRVESYNYLVDYSGSMM----MKHVAVREPKIELAKEAILKINAAMPKMSYQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VVSFAD -- DAEGK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGRLT--PVGDGIKMHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CQEQILVTEEVVVLRGVN 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YGILEAYPIPMEESEHEIFGNELPPKTLVLTFDDGPHRVYTNEIKEILQHYAV-PAVFFE
             GSWNSCVAECAVNTIKSDLEIF-GRLTPVGDGIKMHETVINQMP--PQAAVIL---LTDG
                                         NGKSMMRQMAMDYPE------DVNARDLDEQYMFGDDLLVAPIVQEGQTEKEVYLPE
                                                                     SGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQ-GGLYTFAPY-----SVIIPQ 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----DIILRAVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VGRNIGRFDRAGKPQLGPLSKITRELIEQGYAVANHSMTHDLLSKLSGNALRKEVINA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                Similarity 22.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (TrEMBLrel. 20, (TrEMBLrel. 20, (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Listeria.
                                                                                                                                                                                                                                                                                                                                                                                                                                                SEROVAR 1/2A;
                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=11679669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8.0%;
                                                                                                                8.0%;
22.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           354
----AIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --TFAPY----SVIIPQGSWNSCVAECAVN-TIKSDLEI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             45;
                                                                                                 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 90;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                  Score 90;
Pred. No.
                                                                                              Pred. No. 25;
7; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                      proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                           55FC3969F472DCDE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16;
                                                                                                                               16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    group; Bacillales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 903;
                                                                                                                               Length 1091;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58;
                                                                                                   88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                   125
                                               793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10;
                                                                                                      15;
```

```
DAC DAR RADAR RADA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
ঠ
                                                            문
                                                                                                                 र्
                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Arakawa T., Hara A., Fukunishi Y., Konno H., Kondo S., Yamanaka I.,
RA Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanaka I.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA Kuchl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Kuchl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Kuchl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staubli F., Suzuki R., Tonita M., Wagner L., Washio T.,
RA Schriml K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA Blake J., Boffelli D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Lyons P., Marchiomii L., Mashima J., Mazzarelli J., Mombaerts P.,
RA Mordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyo-oka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA Haynshizki Y., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-JUN-2001
01-JUN-2001
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR002035; VWF A. SMART; SM00327; VWA; 1. PROSITE; PS50234; VWFA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Functional annotation of a full-length mouse Nature 409:685-690(2001).
EMBL; AK019914; BAB31913.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
STRAIN=C57BL/6J; TISSUE=PITUITARY GLAND;
MEDLINE=21085660; PubMed=11217851;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q9CTV9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9CTV9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MGD; MGI:1915026;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hayashizaki Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus (Mouse)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5830475I06RIK.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5830475I06Rik protein (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NON TER
                                                               330
                                                                                                                                                                                           272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         893
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14
                                                                                                                           56
                                                                                                                                                                                                                                                           N
                                                                                                                                                                                    EVEAS--KACGEFVFLMDRSGSMDSPMSTENNSQLRIEAAKETLLLLLKSLPMGCYFNIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KDAKQAI VLNGVNHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LVTEEVVVLRGVNFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HNNLGMNPVEEVKSIYQTNPNVCFHV-----VSFADDAEG-----
PPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA-DDAEGKAIIDQIVALNS 172
                                                            GFGSSYEKFFPESVKYTQDTMEDAVKR--VKALKANLGGTEILTPLCNIYK--ASSIPGH
                                                                                                                                                                                                                                                 EVTASCTKRVESYNYLVDYSGSM--MMKHVAVREPKIELAKEAILKINAAMPKMSY---- 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Y-QLGQNVGNDLKSY----DNLTFRVYPSGDSEYSFYDDVNGGEMRDISVSEDFANEKVS 892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VDLPAMADETTMQVFSTEPTSVTIDGADVAKADTLDAFNEATTGYYYDTVQNLTYVKAAA 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ID-----QIVALNSGSVLVDGLQLLQ-----NPAVCQEFVNSV----FCQEQI 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GEW----
                                                                                                                     -QGGLY-TFAPYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINQM 113
                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                   565 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (TrEMBLrel. 17, (TrEMBLrel. 17, (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5830475I06Rik.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        565
                                                                                                                                                                                                                                                                                                                                                                                                                                                   62297 MW;
                                                                                                                                                                                                                                                                                                                                                     8.0%;
27.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---VDIWNGGVHPGGETISYYADV-DTLPVFAKAGAIIPMNMTDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                                                                                                                                    31;
                                                                                                                                                                                                                                                                                                                    Score 89.5; DI
Pred. No. 12;
31; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                E502E7C1AC2FC8C8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                   DB 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                    88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cDNA collection.";
                                                                                                                                                                                                                                                                                                                                                                                Length, 565;
                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                    23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KAI 163
                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             837
                                                                                                                                                                                                                                                                                                                    11;
```

```
RESULT 15
Q9BP40
                  Ś
                                             В
                                                                   Ś
                                                                                           밁
                                                                                                                Ś
                                                                                                                                           밁
                                                                                                                                                                á
                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
밁
                                                                                                                                                                                         Best Loc
Matches
                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9BP40
Q9BP40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Complement factor B.
Halocynthia roretzi (Sea squirt).
Eukaryota, Metazoa; Chordata; Uroo
Stolidobranchia; Pyuridae; Halocyn
                                                                                                                                                                                                                                      Glycoprotein;
SEQUENCE 10
                                                                                                                                                                                                                                                              PROSITE; PS01209; LDLRA_1; 1.
PROSITE; PS50668; LDLRA_2; 1.
PROSITE; PS50240; TRYPSIN_DOM;
PROSITE; PS00135; TRYPSIN_SER;
PROSITE; PS50234; VWFA; 1.
                                                                                                                                                                                                                                                                                                                                                 PRINTS; PR00722; CHYMOTRYPSIN.
PRINTS; PR007261; LDLARCEPTOR.
SMART; SM00032; CCP; 5.
SMART; SM00192; LDLa; 1.
                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF00057; ldl recept a pfam; PF00084; sushi; 5. Pfam; PF00089; trypsin; 1. Pfam; PF00092; vwa; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR001314; Chymotrypsin.
InterPro; IPR002172; LDL recept A.
InterPro; IPR001254; Ser protease;
InterPro; IPR000436; Sushi SCR CCP
InterPro; IPR000436; VWF A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AF224491; AAK00631.1; -. HSSP; P00763; 1DPO.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-JUN-2001 (TrEMBLrel. 17,
01-JUN-2001 (TrEMBLrel. 17,
01-MAR-2002 (TrEMBLrel. 20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Unique
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TISSUE=HEPATOPANCREAS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                           536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 386
589
                      149
                                              627
                                                                                                                    62
                                                                                                                                                                                                   Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SSUE=HEPATOFANCALT, C., N
X., Namikawa-Yamada C., N
                                                                                                                                                                   N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nitted (JAN-2000) to the SIMILARITY: BELONGS TO E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRYPSIN FAMILY
                                                                                                                                           DVSKSVTKKYQDFS
                                                                                                                                                                   EVTASCTKRVESYNYLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYT 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTAVFITGKDRMOTKAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G-SYLVDGLQLLQNPAV 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PLQ--LFVFTDGEVSDTFSVIREVK--LNSKKHRCF---SFGIGQGASTSLIKNIARVSG 438
                                                                                                                   FAPYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIK----
FYSISAQEDPSPEA-FEELIGLASEPENYIYIEDIHLLSS
                                              KALKSLRDMMLFMEHDIRNDQTNDKCHVFLFTDGMHNEGKNPVEVRKEMQKIF--GSNIE 684
                     FHVVSFADDAEGKAIIDQIVALNS---GSVLVDGLQLLQN 185
                                                                                           YS----IIAYASSNKTQLEITDRFSTNVKEVIKRLDNLDSQVKEAVSELIEETRSGTATA 626
                                                                                                                                                                                                                                                                                                                          SM00020; Tryp_SPc; 1.
SM00327; VWA; 1.
                                                                                                                                                                                          l Similarity
46; Conserv
                                                                   -----EVKSIYQTNPNVC 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        :
=
                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                     Hydrolase;
                                                                                                                                                                                                                                                                                                                                                                                                                                   _recept_a; 1.
                                                                                                                                                                                                    8.0%;
                                                                                                                                                                                                                                         ase; Serine protease.
121213 MW; 4FECC8109E7E00CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  455
                                                                                                                                                                                                                                                                                                                                                                                                                                                        _SCR_CCF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nakanishi
of ascidian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ta; Urochordata; Ascidiacea;
Halocynthia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL/GenBank/DDBJ databases.
PEPTIDASE FAMILY S1; ALSO KNOWN AS
                                                                                                                                                                                        Score 89; DB
Pred. No. 31;
6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sequence up
annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Try.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M., Sasaki
complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ã
                                                                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                          70;
                                                                                                                                                                                                                Length 1084;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  M., Non
factor
                                                                                                                                           ---- DRLKNFGGVLK 570
                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                          CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Nonaka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Trace of
                                                                                                                                                                                          68;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3
                                                                                                                    ----- 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HHE
                                                                                                                                                                                         Gaps
```

Search completed: April 9, 2003, 14:32:15 Job time : 92 secs

٠,

š

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
106.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
        seq length:
seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-034-500-2
1119
1 AEVTASCTKRVESYNYLVDY......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BLOSUM62
Gapop 10.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                112892 seqs, 41476328 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               April 9,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20000000000
     2003, 14:18:41 ; Search time 25 Seconds (without alignments) 361.674 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gapext 0.
YWMC BACSU
YWMD BACSU
ITH3 HUMAN
TNFA MARMO
DH84 EMENI
MURI MYCTU
PGK RHILO
YAVI XANCV
ITH3 MOUSE
CADH MEDSA
GPD1 YEAST
YA79 SCHPO
RPC2 SCHPO
RPC2 SCHPO
RPC2 SCHPO
RPC2 SCHPO
RPC3 SCHPO
RPC3 SCHPO
RPC3 SCHPO
RPC4 FAST
YA79 SCHPO
RPC7 SCHPO
RPMC CHLMU
ROH1 RAT
YRC7 YARLI
GLK ECOLI
GLG DICDI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   112892
 0986j1
0986j1
0986j1
0986j1
0914727
0114727
01253
0109753
0109753
0109753
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109754
0109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q06033
035734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Description
5 mycobacteri
6 bacillus su
3 ureaplasma
7 caenorhabdi
6 rattus norv
1 chlamydia m
1 mycobacteri
9 rattus norv
9 rattus norv
5 helicobacte
4 yarrowia li
0 escherichia
1 dictyosteli
                                                                                                                                                                                                                                           6 medicago sa
5 saccharomyc
3 schizosacch
3 schizosacch
3 rhodcbacter
4 helicobacte
5 chlamydia m
7 scherichia
1 salmonella
                                                                                                                                                                                                                                                                                                                                                                                                                        O bacillus su
l bacillus su
l bacillus su
l homo sapien
marmcta mon
marmcta mon
emericella
mycobacteri
l rhizcbium l
                                                                                                                                                                                                                              measles vir
                                                                                                                                                                                                                                                                                                                                                                                                          xanthomonas
                                                                                                                                                                                                                                                                                                                                                                                           mus musculu
```

																														`														
3 2	R R R	R S	2 5	<b>₽</b> 3	₽₽	Ŗ.	R R	RA	RA	₽ \$	R P	₽.	₽ ₹	RA	₽ 5	R.	R R	R.	R R R	₽.	R R C	R P	2 전 :	7 7 1	R	RS R	2 2	א קאק סי	28	88	0 E	335	3 5 5	ID YY	RESI		•							
1	Yosh	Wint	Tosa	Take	Seki	Sato	Rieg	Parr	Noon	Medi	Kuri	Koba	Jori	Guis	Ghim	Enti	Choi	Brou	Azev	Kuns	STRA	SEQU	Micr	dear	Vill	Pres Hull	MEDL	DOSS OCT	NCBI_Tax	Baci	уумс.	15-J	16-0CT-	DWWY DWWY	် က		4 4 5 4 5	43	41	40	ω Θ	າ 36 7	ა ა ა	
יייים וייים ויים וייים ו	ida K.,	ers P.,	to V., U	uchi M.,	guchi J.	T., Sca	eran E.,	0 V., Po	e D., O	na N., Le	ta K., L	yashi Y.	егс н., в В., Ка	eppi G.,	S.Y., G	an K.D.,	zot F.,	illet S.	edo V.,	t F., Og	IN=168;	ENCE FRO	obiology	ees) ":	ani G.,	ecan E.,	INE=9801	SEQUENCE FROM	_TaxID=1423	llus sub	CICAL	2002	2001	BACSU	=		75.5 75.5	76	76	76	76	۰, و	77 76.5	
e Acrro	Yoshika A Ganom	Wipat A	chiyama	Tamako	, Sekow	nlan E.	ivolta	hl T.M.	Reilly	ellado	apidus	, Koett	ramata	Guy B.	laser F	Erring	odani J Devine	, Brusc	Bertero	asawara	4033 · E	X N.A.	143:33	s subci	Kunst F	Moszer	5417; F	M N.A.	423;	1 8	pro	(Rel.	(Rel.	STAN			6.7 6.7							
ie pedu	wa H.F.	., Yama	S., V	ehi A.	вka А.,	, Schle	רי. מיין מיין	Porte	M., Oga	R. P	A., Lai	er P.,	D., Kar	J., Hac	oofi	ton J	K.M., 10	hi C.V	M.G.,	N., M.	= powq!ic		13-332	TIS GET	Danc	C., B	ubMed=		ia; bact		n ywmc	1, Las	0, Cre	TANDARD;			338 1 501 1	8 6	19	63 0	26	2.4		
A Takeuchi M., Tamakoshi A., Tamaka T., Terpstra P., Tognoni A.,  A Tosato V., Uchiyama S., Vandenbol M., Vannier F., Vassarotti A.,  A Viari A., Wambutt R., Wedler E., Wedler H., Weitzenegger T.,  A Winters P., Wipat A., Yamamoto H., Yamane K., Yasumoto K., Yata K.,  A Yoshida K., Yoshikawa H.F., Zumstein E., Yoshikawa H., Danchin A.;  The complete genome sequence of the Gram-positive bacterium Bacillu	Tanaka T	Seror S.	eich S., So	ha E. Roc	etelle D.,	wa K., Ogi	fizuno M.	rdinois S.,	Koningstei	новопо S., заhara Y.,	ga K., Haie	feau A., Go	, Fabret C	onnerton I. Ousterhoft	., Caldwell	Bessieres	oszer I., 1	1184777:		3 (1997) .	Tome from S	hin A., G	oursier L., chleich S.,	9353933;		ritaics; po		precurs	annota	ced)	PRT;		ALIG	L FLIG_BACSU L URK1_YEAST				NO		ECLC				
e eram-positive pac	n E., Yoshikawa H.,	Yamane K., Yasumoto	., Vannier F., Vass	., Terpstra P., Tog	J., Serror P., Shin	chroeter R., Scoffo	che B. Rose M. Sa	Porwollik S., Pres	iwara A., Oudega B.	Moestl D., Nakai S	, Lauber J., Lazare	in G., Krogh S., Ku	, Hullo M.F., Itaya Klaerr-Blanchard M	ech J., Harwood C.R	a S., Galizzi A., G olightly E.J., Gran	., Ferrari B., Foul	A., Ehrlich S.D.,	1 B., Capuano V., C	P., Bolotin A., Bo	Albertini A.M., All				gerac (sil degrees)		Sona	,	SEQUENCE FROM N.A.	pactitaceae; pactitas		•	tion update)	1	227 AA.		ALIGNMENTS								
1011	Danch	K., Y.	arotti	noni A	B.S.,	ne F.,	daje v	cott A	Park	Sue C	VIC V.	mano M	., XIe:	., Hena	di G.,	ger D.	Danie. Emmers	arter	rchert	oni G.				EQ TICK	;	В.н.,			·	•							P23448 P27515	or ·	. ~	$\sim$ $^{\circ}$	, –	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	P14829 P54281	
DOCTITION	Danchin A.;	ıta K.,	A.,	•	Soldo B.,	•	tords S.,	. X	S.H.,	rck M.	-		in C.,	aut A.,	2:	*	on P.T.,	N.M.	S.,	,				CK (554		Fuente V.,											bacillus su saccharomyc	measles vir	streptococc	candida boi	rhizobium m	drosophila	klebsiella bos taurus	

꼅

subtilis.";

```
RESULT 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RRARE RANGE
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; Z81356; CAB03680.1; -.
EMBL; Z99122; CAB15691.1; -.
Subtilist; BG12474; ywmC.
InterPro; IPR002035; VWF A.
Pfam; PF00092; vwa; 1.
SMART; SM00327; VWA; 1.
PROSITE; PS50234; VWFA; 1.
Hypothetical protein; Signal; COSIGNAL 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboratic between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercia entities requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                               YWMD_BACSU
P70961;
                                                                                                        MEDLINE=98015417; PubMed=9353933;
Presecan E., Moszer I., Boursier I., Cruz Ramos H.C., I
Hullo M.-F., Lelong C., Schleich S., Sekowska A., Song
Villani G., Kunst F., Danchin A., Glaser P.;
"The Bacillus subtilis genome from gerBC (311 degrees)
                                                                                                                                                                                                                                                                                                   16-OCT-2001
16-OCT-2001
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                             BACSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -!- SIMILARITY: STRONG, TO B.SUBTILIS Y
-!- SIMILARITY: CONTAINS 1 VWFA DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nature 390:249-256(1997)
                                                                                                                                                                                      SEQUENCE FR
STRAIN=168;
                                                                                                                                                                                                                                           Bacillus subtilis.
Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
          Kunst F., Ogasawara N., Moszer I.,
                        MEDLINE=98044033; PubMed=9384377;
                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                               NCBI_TaxID=1423;
                                                                                                                                                                                                                                                                                     Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DOMAIN
                                                                              icrobiology 143:3313-3328(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                        185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           μ
                                                                                                                                                                                                                                                                                                                                                                                                                                     DYKEGYKGQLNAIAKVGGGEYF-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DDAEG-KAIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTE 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FGSEGNNKNSGKVQSCEAIRNVYGFQSFN---EQSFLNS-----LNTIGPT-----GWT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ନ୍ଦ୍ର
ଜୁ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AEKTETEAKAPANVAVLLDASGSMAKRIDGV--SKFNSAKKEISKFASSLPEGTQVKMSV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AEVTASCTKRVESYNYLVDYSGSMMKHVAVREPKIELAKEAILKINAAMP-----KMSY 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PIAKALNEAKSSFDQLDAKGEKVVYLLTDGEETCGGNPIKTAKELQK--DNITVNVIGF-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PVGDGIKMHETVINOMPP--QAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      l Similarity 57; Conserv
                                                                                                                                                                                                  FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24
36
227 AA;
                                                                                                                                                                                                                                                                                     (Rel. 40, Created)
(Rel. 40, Last sequence update)
(Rel. 41, Last annotation update)
protein ywmD precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              227 H
227 VI
24542 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11.3%;
24.6%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----GLYTFAPYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLT
                                                                                                                                                                                                                                            Bacillales; Bacillaceae; Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B.SUBTILIS YWMD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 126; DB 1;
Pred. No. 0.00032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VWFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           POTENTIAL. HYPOTHETICAL PROTEIN YWMC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Complete proteome
                                                                                                                                                                                                                                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACB1D2A106310A5E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
          Albertini A.M., Alloni
                                                                                                                                                                                                                                                                                                                                                                                                                                       PAYTOKDVEKIFTOOSLMLSK 227
                                                                                                                                                                                                                                                                                                                                                                224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     noved. Usage by and for commercial
  (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                             (311 degrees) to lick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 227;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                       De La Fuente
g B.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        11;
```

밁

Š

105 143 165

DQIVALNSGSVL

á

MHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAII 164

KNVVYLITDGEETCGGDPAAEIEKLRASNVDTIVNIIGFNFDVKGNEEM

```
SOT TINGENERAL PROPERTY OF THE CONTRACT OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RA Borrises R., Boursier L., Brams A., Braum M., Brighell S.C., Bron S., RA Brouillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M., RA Brouillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M., RA Brouillet S., Bruschi C.V., Caldwell B., Capuano V., Carter N.M., RA Brouillet S.C., Bron S., Choi S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A., RA Denizot F., Devine K.M., Dusterhoft A., Ehrlich S.D., Emmerson P.T., RA Entian K.D., Errington J., Fabret C., Ferrari E., Foulger D., RA Entian K.D., Errington J., Fabret C., Ferrari E., Foulger D., RA Entian K.D., Errington J., Fabret C., Ferrari E., Foulger D., RA Entian K.D., Errington J., Fabret C., Ferrari E., Foulger D., RA Ghim S.Y., Glaser P., Goffeau A., Golightly E.J., Grandi G., RA Hilbert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L., RA Hilbert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L., RA Hilbert H., Holsappel S., Hosono S., Hullo M.F., Itaya M., Jones L., RA Kurita K., Lapidus A., Lardinois S., Lauber J., Lazarevic V., RA Kurita K., Levine A., Liu H., Masuda S., Mauel C., Medigue C., RA Lee S.M., Mellado R.P., Mizuno M., Moestl D., Nakai S., Noback M., RA Noone D., O'Reilly M., Ogawa K., Ogiwara A., Oudega B., Park S.H., RA Parso V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M., RA Parro V., Pohl T.M., Portetelle D., Porwollik S., Prescott A.M., RA RA Rieger M., Rivolta C., Rocha E., Roche B., Rose M., Sadale Y., RA Sekiguchi J., Sekowska A., Sero S.J., Serror P., Shin B.S., Soldo B., Sato T., Scanlan E., Takafaji T., Takahashi H., Takemaru K., RA Takeuchi M., Tamakoshi A., Tanaka T., Terpstra P., Tognoni A., Parte complete genome sequence of the Gram-positive bacterium Bacillus Tht Bothila.", Poshikawa H.F., Zumstein E., Yoshikawa H., Danchin A., Tata S., Wolshikawa H.F., Zumstein E., Yoshikawa H., Danchin A., Tata S., Wolshikawa H.F., Zumstein E., Yoshikawa H., Danchin A., Tata S., Wolshikawa H.F., Zumstein E., Yoshikawa H., Danchin A., Tata S., Tata S., Tata S., Tata S., Tata S., T
                                                        Ś
                                                                                                                                              밁
                                                                                                                                                                                                              Ś
밁
                                                                                                                                                                                                                                                                                                                           Query Match
Best Local :
                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SubtiList; BG12475; ywmD.
InterPro; IPR002035; VWF_A.
SMART; SM00327; VWA; 1.
PROSITE; PS50234; VWFA; 1.
Hypothetical protein; Signal; Complete proteome.
SIGNAL 1 23 POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nature 390:249-256(1997).
-!- SIMILARITY: STRONG, TO B.SUBTILIS YWMC.
-!- SIMILARITY: CONTAINS 1 VWFA DOWAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; Z81356; CAB03681.1; -. EMBL; Z99122; CAB15690.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "The complete genome sequence subtilis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DOMAIN
                                                               59
                                                                                                                                              35
                                                                                                                                                                                                                     17
93
                                                                                                                                                                                                                  LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPK-----MSYQGG------
STTETIYGLHPYEGSLFDNSLSELKPTG-WTP-IAKALADT-RKEFEAFD----
                                                                       ----LYTEAPY----
                                                                                                                                                  LFDGSGSMVQK--TGGERKIDIAKKSVKSFAELLPKDTNLMLRVFGHAGNNKLSGKALSC
                                                                                                                                                                                                                                                                                         42;
                                                                                                                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                        224 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bertero M.G., Bessieres P., Bolotin A.,
                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24
31
                                                                                                                                                                                                                                                                                                                                                                                                                                    224
224
23965
                                                                                                                                                                                                                                                                                                                           9.5%;
                                                                                                                                                                                                                                                                                                                                                                                                                                    MW;
                                                                       SVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIK 104
                                                                                                                                                                                                                                                                                         29;
                                                                                                                                                                                                                                                                                         Score 106.5;
Pred. No. 0.01
29; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HYPOTHETICAL PROTEIN YMMD VWFA.
                                                                                                                                                                                                                                                                                                                                                                                                                                        4614AC7F9025E397
                                                                                                                                                                                                                                                                                                                               .017
                                                                                                                                                                                                                                                                                                                                                             DB 1;
                                                                                                                                                                                                                                                                                                 66;
                                                                                                                                                                                                                                                                                                                                                                                                                                               CRC64;
                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borchert
                                                                                                                                                                                                                                                                                                 55.
       -ADG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          s.
                                                                                                                                                                                                                                                                                             Gaps
       142
                                                                                                                                                  92
                                                                                                                                                                                                                         58
                                                                                                                                                                                                                                                                                                 9
```

```
RESULT 3
                                                                                                                                                                                                                                                                                  AR Rutherfurd S., Pizzo S.V.;

AR Rutherfurd S., Pizzo S.A.;

AR Rutherfurd S.A.;

AR Rut
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q06033; Q99085;
15-JUL-1998 (Rel. 36, Created)
15-JUL-1998 (Rel. 36, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Inter-alpha-trypsin inhibitor heavy chain H3
chain H3) (Serum-derived hyaluronan-associate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE OF 30-49; 463-477 AND 497-515.

MEDLINE-89380192; PubMed=2476436;

Enghild J.J., Thoegersen I.B., Pizzo S.V., Salvesen G.;

Enghild J.J., Thoegersen I.B., Pizzo S.V., Salvesen G.;

"Analysis of inter-alpha-trypsin inhibitor and a novel trypsin inhibitor, pre-alpha-trypsin inhibitor, from human plasma.";

J. Biol. Chem. 264:15975-15981(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TISSUE=Liver;
MEDLINE=93215656; PubMed=7681778;
Bourguignon J., Diarra-Mehrpour M
                                              entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Eur. J. Biochem. [3]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   on three
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sesboue R., Martin J.P.;
Sesboue R., Martin J.P.;
"Human pre-alpha-trypsin inhibitor-precursor heavy chain. cDNA and
deduced amino-acid sequence.";
Eur. J. Biochem. 212:771-776(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE OF 631-647, AND CROSS-LINKAGE MEDLINE=91093267; PubMed=1898736;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "Human plasma inter-alpha-trypsin inhibitor on three chromosomes.";
Eur. J. Biochem. 179:147-154(1989).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Diarra-Mehrpour M., Bourguignon J.,
Passage E., Salier J.P., Martin J.P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens (Human).
EMBL; X67055;
EMBL; X14690;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=89137072; PubMed=2465147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE OF 341-885 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NCBI_TaxID=9606;
                                                                                                                                                                                                                                                                     SIMILARITY: CONTAINS 1 VWFA DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FROM N.A.
CAA47439.1;
CAA32821.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 bitor heavy chain H3 precursor hyaluronan-associated protein)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Craniata; Vertebrata; l
Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Σ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sesboue R., Mattei M.-G.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Thiberville L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TO BIKUNIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             encoded
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bost
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Buteleostomi; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           by four genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (ITI heavy (SHAP).
                                                                                                                                                                 outstation -
```

```
RESULT
TNFA_M
  RRAPPRATIA
                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BINDING
CONFLICT
CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PROPEP
DOMAIN
                                                                                                                                                                                                                                                     15-JUL-1999 (Rel. 38, Created)
15-JUL-1999 (Rel. 38, Last sequence updated)
15-JUN-2002 (Rel. 41, Last annotation upon necrosis factor precursor (TNF-alpiligand superfamily member 2) (Cachectin)
TNF OR TNFS-2 OR TNFA.
                                                                                                                                                                                                                                                                                                                                            MARMO
                                                                                                                                   SEQUENCE FROM N.A.
TISSUE-Peripheral blood;
MEDLINE-9813953; PubMed-9472070;
Lohrengel B., Lu M., Roggendorf M.;
Molecular cloning of the woodchuck
                                                                                                                                                                                                                                                                                                                       TNFA MARMO O35734;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SMART;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MIM; 146650;
SEQUENCE FROM N.A.
TISSUE=Peripheral blood;
MEDLINE=20184748; PubMed=10721723;
Li D.H., Havell E.A., Brown C.L., Cullen
"Woodchuck lymphotoxin-alpha, -beta and
                                                              TISSUE=Peripheral blood;
Zhou H., Hu J., Seeger C
Submitted (AUG-1998) to
                                                                                                                             and
                                                                                                                                                                                                                         Mammalia; Eutheria;
                                                                                                                                                                                                                                     Eukaryota;
                                                                                                                                                                                                                                             Marmota monax (Woodchuck)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Glycoprotein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Serine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS50234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pfam; PF00092; vwa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     InterPro;
                                                                                             SEQUENCE FROM N.A
                                                                                                                                                                                                  NCBI_TaxID=9995;
                                                                                                                                                                                                                Marmota
                                                                                                                 Immunogenetics
                                                                                                                                                                                                                                                                                                                                                                                      389
                                                                                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                                                                                                                                                                                                                                                                                                               330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         283
                                                                                                                                                                                                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16
                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                               IL-6
                                                                                                                                                                                                                                                                                                                                                                                      LTDGDANVGESRPEKIQ 405
                                                                                                                                                                                                                                                                                                                                                                                                          LTDGHNNLGMNPVEEVK
                                                                                                                                                                                                                                                                                                                                                                                                                              EHLVQATPENLQEARTFVKSMEDKG-MTNINDGLLRGISMLNKAREEHRIPERSTSIVIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                   SCVAECA----- VNTIKSDLEIFGRLTPVGDGIKWHETVIN----- QMPPQAA--VIL 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FVIDISGSMAGR-----KLEQTKEALLRILEDMKEEDY---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SM00327; VWA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HGNC:6168; ITIH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IPR002035; VWF_A.
                                                                                                                                                                                                                                     Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ä
                                                                                                                  47:332-335(1998).
                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           inhibitor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VWFA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17
30
647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                885
438
87
576
547
344
357
                                                                                                                                                                                                                          Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.2%;
                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation update)
precursor (TNF-alpha) (
                                                              C.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Repeat; Signal;
                                                                EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 92; I
Pred. No. 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R -> K (IN REF. 2).
N -> G (IN REF. 2).
Q -> H (IN REF. 2).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VWFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
CHONDROITIN 4-SULFATE,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INTER-ALPHA-TRYPSIN INHIBITOR HEAVY CHAIN H3.
                                                                                                                                                                                                                         Craniata; Vertebrata; Euteleostomi; Sciurognathi; Sciuridae; Sciurinae;
                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 core 92; DB 1 red. No. 1.9; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BC63856F8F5E4A1B
            Cullen J.M.;
                                                                                                                                       cytokines: TNF-alpha, IFN-gamma
                                                                                                                                                                                                                                                                                                                                  233
  tumor necrosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Multigene family
                                                                                                                                                                                                                                                                               (Tumor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -LNFILFSGDV--STWK 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                               necrosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (POTENTIAL)
(POTENTIAL)
CROSS-LINK 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        885
  factor genes:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28;
                                                                                                                                                                                                                                                                                factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7;
```

structure, characterization and biological activity.";

片

142 KGQGCPSYVLLTHTV 156

```
Query Match
Best Local S
Matches 45
                                                                                                                                                                                                                                                                                                                                                                                     SITE
MOD_RES
DISULFID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AF082491; AAC32615.1; -.
EMBL; AF012910; AAF34863.1; -.
HSSP; P06804; 2TNF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gene 242:295-305(2000).
-!- FUNCTION: Cytokine that binds to TNFRSF1A/TNFR1
TNFRSF1B/TNFBR. It is mainly secreted by macrop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROSITE; PS00251; TNF 1; 1.
PROSITE; PS50049; TNF 2; 1.
Cytokine; Cytotoxin; Transmembrane;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no resti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   +
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SMART; SM00207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRINTS; PR01234; TNECROSISFCT ProDom; PD002012; TNF_abc; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00229; TNF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; Y14137; CAA74569.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DOMAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro; IPR003636; TNF_family.
194 NSVFCQEQILVTEEV
                                                                                                  146
                                                                                                                                                                                                                                                          36 IELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNSCVAECAVNTIKSDLEIFGR
                                                            92
                                                                                                                                         45
                                                                                                                                                                                 96
                                                                                                                                                                                                                         10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       similarity).
DISEASE: CACHEXIA ACCOCANCER AND INFECTION,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SUBCELLULAR LOCATION: Type II membrane protein. Also extracellular soluble form (By similarity). PTM: The soluble form derives from the membrane form
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AND MALNUTRITION.
SIMILARITY: BELONGS TO THE TUMOR NECROSIS FACTOR FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 proteolytic processing (By similarity).

PTM: The membrane form, but not the soluble form, is phosphorylated on serine residues. Dephosphorylation of the membrane form ocurrs by binding to soluble TNFRSF1A/TNFR1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           proliferation and induce cell differentiation.
SUBUNIT: Homotrimer (By similarity).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TNFRSF1B/TNPBR. It is mainly secreted by macrophages and can induce cell death of certain tumor cell lines. It is potent pyrogen causing fever by direct action or by stimulation of interleukin 1 secretion and is implicated in the induction of cachexia, Under certain conditions it can stimulate cell
                                                          ----HVVAKNEDKE----
                                                                                                                                                                                                                         VELAEE----ALPKEAWG-----
                                                                                                  NVCFHVVSFADDAEGKAIIDQIVALN--SGSVLVDGLQLLQNPAV-------CQEFV
                                                                                                                                                                             LT-----PVGDGIKWHETVINQMP--PQAAVILLTDGHNNLGMNPVEEVKSIYQTNP 145
                                                                                                                                         TTLFCLLHFGVIG---POREEFLNNLPLSPQAQMLTLRSSSQNMNDKPVA--
                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                 57
77
2
146
233
                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        78
1
36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CACHEXIA ACCOMPANIES A VARIETY OF DISEASES, 1 ND INFECTION, AND IS CHARACTERIZED BY GENERAL
                                                                                                                                                                                                                                                                                                                                                                                     AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TNF;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  233
                                                                                                                                                                                                                                                                                                                                                                                     25764 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          565
                                                                                                                                                                                                                                                                                                                           8.1%;
23.1%;
                                                            -QLVWLSRRANALLANGMELIDNQLVVPANGLYLVYSQVLF
                                                                                                                                                                                                                                                                                                        28;
                                                                                                                                                                                                                                                                                                                                                                                                      (POTENTIAL).
EXTRACELLULAR (POTENTIAL).
CLEAVAGE (BY ADAM17) (BY S:
PHOSPHORYLATION (BY CKI) (I
BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                           Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mbrane; Phosphorylation; Signal-anchor.
TUMOR NECROSIS FACTOR, MEMBRANE FORM.
TUMOR NECROSIS FACTOR, SOLUBLE FORM.
CYTOPLASMIC (POTENTIAL).
SIGNAL-ANCHOR (TYPE-II MEMBRANE PROTEIN)
                                                                                                                                                                                                                                                                                                                                                                                     34D3D1965DAAE0E7 CRC64;
                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                           91;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                       POGS----SRCLCLSLFSFLLVAGA 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    There are no restrictions on
                                                                                                                                                                                                                                                                                                                         DB 1;
0.44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Usage
                                                                                                                                                                                                                                                                                                                                             Length 233
                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              λq
                                                                                                                                                                                                                                                                                                                                                                                                                         (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                INCLUDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   λÂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          exists
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ILL HEALTH
                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              עם
                                                                                                                                                                                                                                                                                                      70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Of
                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  commercial
                                                            141
                                                                                                                                                                                                                                                                95
                                                                                                                                       91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          an
                                                                                                                                                                                                                                                                                                      10;
```

Ś

Ś 밁 Ś 밁 Ś

문

```
MURI_MYCTU
ID MURI_MYC
AC Q10626;
                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                        S
                                                                                                               S
                                                                                                                                             밁
                                          RESULT 6
                                                                                     밁
                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 45; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-NOV-1990
01-NOV-1990
01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DHE4_EMENI
P18819;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.

MEDLINE=89384423; PubMed=2550758;

Hawkins A.R., Gurr S.J., Montague P., Kinghorn J.R.;

Hawkins A.R., Gurr S.J., Montague P., Kinghorn J.R.;

"Nucleotide sequence and regulation of expression of the Aspergillus nidulans gdhA gene encoding NADP dependent glutamate dehydrogenase.";

MOI. Gen. Genet. 218:105-111(1989).

MOI. Gen. Genet. 218:105-111(1989).

MOI. HADPH.

SUBUNIT: HADPH.
                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR001625; GLFV_Dh.
Pfam; PF00208; GLFV_dehydrog; 1.
Pfam; PF02812; GLFV_dehydrog N; 1.
PRINTS; PR00082; GLFDHDRGNASE.
PROSITE; PS00074; GLFV_DEHYDROGENA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; X16121; CAA34252.1; -. PIR; S04904; S04904.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Emericella nidulans (Aspergillús nidulans).
Eukaryota; Fungi; Ascomycota; Pezizomycotina;
Eurotiales; Trichocomaceae; Emericella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01.NOV-1990 (Rel. 16, Created)
01.NOV-1990 (Rel. 16, Last sequence update)
01.CCT-1996 (Rel. 34, Last annotation updat
NADP-specific glutamate dehydrogenase (EC 1
                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                            Oxidoreductase; NADP. ACT_SITE 114 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entities requires a license agreement (See http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=5072;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HSSP; P24295; 1AUP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <del>-</del>
                                                                                     389
                                                                                                                182
                                                                                                                                              357
                                                                                                                                                                           122
                                                                                                                                                                                                      310
                                                                                                                                                                                                                                                               250
                                                                                                                                                                                                                                                                                           17
                                                                                                                                                                                                                                  65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY: BELONGS TO THE GLU/LEU/PHE/VAL DEHYDROGENASES
                                                                                                                  LLQNPA
                                                                                                                                                                                                                                                                                          LVDYSGSMMKHVAVREPKIELAKEAILKIN----AAMPKMSYQGGLYTFAP-----
               MYCTU
                                                                                     MAQNSA
                                                                                                                                                                         LTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSGSVLVDGLQ 181
                                                                                                                                                                                                                                  ---YSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINQMPPQAAVIL 121
                                                                                                                                                                                                                                                               LSDSKGSLIVKDESASFTPEETALIADLKVARKQLSELATSSAFAGKFTYIPDARPWTNI 309
                                                                                                                                              F-EAHRN--ANPGDAIWY--
                                                                                                                                                                                                       PGKFEVALPSATQNEVSGEEAEHLIKSGVRY-----IAEGSNMGCT
                                                                                                                                                                                                                                                                                                                                                                              459 AA; 49608 MW;
                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                    GLFV_DEHYDROGENASE; 1.
                                                                                                                                                                                                                                                                                                                                                                                             114
                                                                                                                                                                                                                                                                                                                                    8.0%;
                                                                                                                                                                                                                                                                                                                     ; Score 90; DB; Pred. No. 1.3; 25; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                PRT;
                                                                                                                                                                                                                                                                                                                                                                                682964399C002B7D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               459
                271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
(EC 1.4.1.4)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                There are no restrictions ing as its content is in
                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                        60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eurotiomycetes,
                                                                                                                                                                                                                                                                                                                                                  Length 459
                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (NADP-GDH).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    λÂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2-oxoglutarate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a collaboration
                                                                                                                                                                                                       QAAIDI
                                                                                                                                                                                                                                                                                                                          56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FAMILY
                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      commercia
                                                                                                                                                                                                         356
                                                                                                                                                                                                                                                                                           64
                                                                                                                                                388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                          8
```

맑

55

HALAIGDDLVGRGVKALVIACNSASSACLRDARERYQVPVV

```
밁
                                                                                                                                                                                                                                                                                                                    SAN BERREAR BE
      ફ
                                                                                                                      δ
                                                                                                                                                                                                                        Query
Best L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cole S.T., Brosch R., Parkhill J., Garnier T., Churcher C., Harris Gordon S.V., Eiglmeier K., Gas S., Barry C. III, Tekaia F., Baddocok K., Basham D., Brown D., Chillingworth T., Connor R., Davies R., Devlin K., Feltwell T., Gentles S., Hanlin N., Holroyd Hornsby T., Jagels K., Krogh A., McLean J., Moule S., Murphy L., Oliver S., Osborne J., Quail M.A., Rajandream M.A., Rogers J., Rutter S., Seeger K., Skelton S., Squares S., Squares R., Sulston J.E., Taylor K., Whitehead S., Barrell B.G.; "Deciphering the biology of Mycobacterium tuberculosis from the
                                                                                                                                                                                                                                                                                                       Tuberculist; Rv1338; -.
InterPro; IPR001920; Asp/Glu_race.
InterPro; IPR001931; Glu_race.
InterPro; IPR004391; Glu_race; 1.
Pfam; PF0117; Asp_Glu_race; 1.
TIGRPAMS; TIGR00067; glut_race; 1.
PROSITS; PS00923; Asp_GLU RACEMASE 1; 1.
PROSITS; PS00924; ASP_GLU RACEMASE 2; 1.
PROSITS; PS00924; ASP_GLU_RACEMASE 2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; Z73902; CAA98102.1; --
EMBL; AE007011; AAK45644.1; --
HSSP; P56868; 1B74.
TIGR; MT1379; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  laboratory strains.";
Submitted (APR-2001) to the EMBL/GenBank/DDBJ databases.
-I- FUNCTION: PROVIDES THE (R)-GLUTAMIC ACID REQUIRED FOR CELL
WALL BIOSYNTHESIS (BY SIMILARITY).
-I- CATALYTIC ACTIVITY: L-glutamate = D-glutamate.
-I- PATHMAY: Peptidoglycan biosynthesis.
-I- SIMILARITY: BELONGS TO THE ASPARTATE/GLUTAMATE RACEMASES FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01-OCT-1996 (Rel. 34, Created)
01-OCT-1996 (Rel. 34, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glutamate racemase (EC 5.1.1.3)
MURI OR RV1338 OR MT1379 OR MTCY130.23 OR MTCY02B10.02.
Mycobacterium tuberculosis.
Bacteria; Actinobacteria; Actinobacteria (class); Actinobacteridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complete genome sequence.";
Nature 393:537-544(1998).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Actinomycetales; Corynebacterineae; NCBI_TaxID=1773;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Whole genome comparison of Mycobacterium tuberculosis clinical and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=98295987;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
      150
                                                                                                                                                                                                                        Local
                                                                                                                            96
                                                                    ហ
                                                                                                                         LTPVG-----DGIKMHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCF 149
HVVSFADDAEGKAIIDQIVALNSGS--VLVDGLQLLQNPAV
                                                              LAPVGVFDSGVGGLTVARAIIDQLPDEDIVYVGDTGNGPYGPLTIPEIRA-
                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oshkosh;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PubMed=9634230;
                                                                                                                                                                                                                     7.5%;
                                                                                                                                                                                       Pred. No. 2.3
); Mismatches
                                                                                                                                                                                                                        Score 84;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mycobacteriaceae; Mycobacterium
                                                                                                                                                                                                                        N
                                                                                                                                                                                                                                                  BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    There are no restrictions in as its content is in
                                                                                                                                                                                                                                                  <u>,</u>
                                                                                                                                                                                           39;
                                                                                                                                                                                                                                                  Length 271;
                                                                                                                                                                                       18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Harris
                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
.
```

```
RESULTY 7
PEGK_RHIII
AC 098FJ1;
DT 15-JUN-2
DR PGK OR P
OS RAIZE
ON PGK OR P
OS RAIZE
ON REDLINES
RA Kishida
RA Mochizul
RA Takeuch:
RT "Complei
RT "C
RESULT 8
YAV1_XANCV
ID YAV1_XANCV
AC P14727;
DT 01-APR-1990
                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Transferase; Ki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         InterPro, IPR001576; PGK.
Pfam; PF001162; PGK; 1.
PRINTS; PR00477; PHGLYCKINASE.
PROSITE; PS00111; PGLYCERATE_KINASE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Complete genome structure of the nitrogen-fixing Mesorhizobium loti."; DNA Res. 7:331-338(2000).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Kaneko T., Nakamura Y., Sato S., Asamizu E., Kato T., Sasan Watanabe A., Idesawa K., Ishikawa A., Kawashima K., Kimura Kishida Y., Kiyokawa C., Kohara M., Matsumoto M., Matsuno J. Mochizuki Y., Nakayama S., Nakazaki N., Shimpo S., Sugimott Takeuchi C., Yamada M., Tabata S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=MAFF303099;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rhizobium loti (Mesorhizobium loti).
Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae
Phyllobacteriaceae; Mesorhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AP003002; BAB50576.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=21082930;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-JUN-2002 (Rel. 41,
15-JUN-2002 (Rel. 41,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                 130
                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CATALYTIC ACTIVITY: ATP + 3-phospho-D-glycerate = A phospho-D-glyceroyl phosphate. PATHWAY: Second phase of glycolysis; second step. SUBUNIT: Monomer (By similarity). SUBCELLULAR LOCATION: Cytoplasmic (Potential). SIMILARITY: BELONGS TO THE PHOSPHOGLYCERATE KINASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RHILO
                                                                                                                                                                                                                                                                                                                                                                                                                                                       VRVDLNV-----PVADGKVTDATRIERIAPTIAELSGKGAKVILLAHFGRPKDGPSPEFS 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IKSDLEIFGRLTPVGDGIKMHETVINQMPPQ------AAVILLTD-GHNNLGMNPVEB 136
                                                                                                                                                                                                                                                                                                                                    LEPIARATAEVLGRPVGFASDCVGDMAGSAVAAMNKGDVL----LFENTRFYKAEEKND 129
                                                                                                                                                                                                                                                                                                                                                                                         VKS Į YQTNENVCFHVVS FADDAEGKAI I DQI VALNSGSVLVDGLQLLQN--
                                                                                                                                                                                                                                                                         PAVCOE-----FVNSVF
                                                                                                                                                                                                                 PAFSERLAANGDI FVNDAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FROM N.A
      (Rel. 14, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kinase; Glycolysis; Complete proteome.
98 AA; 41304 MW; 965669CB04C0A5FD CRC64;
                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=11214968;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last sequence u 
Last annotation 
se (EC 2.7.2.3).
                                                                                                                                                                                                                                                                         197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 81.5; DB Pred. No. 6.1; 13; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                              1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            symbiotic bacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sugimoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sasamoto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
```

```
RESULT 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
BARB
                                                                                                                                                                                        밁
                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEKULANCE STRAINLISOLATE 71-21;
STRAINLISOLATE 71-21;
MEDLINE-89384426; PubMed=2550761;
Bonas U., Stall R.E., Staskawicz B.;
"Genetic and structural characterization avrBs3 from Xanthomonas campestris pv. ve
Q61704;
15-JUL-1998
15-JUL-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the European Bioinformatics Institute. There are no rest
use by non-profit institutions as long as its content
modified and this statement is not removed. Usage by ar
entities requires a license agreement (See http://www.isb-
or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (JUL-1991) to the EMBL/GenBank/DDBJ databases.
-!- DISEASE: THE TERM AVIRULENT DESCRIBES A POTENTIALLY VIRU-PATHOGEN WHICH IS UNABLE TO INDUCE DISEASE SYMPTOMS IN SCULTIVARS OF PEPPER.
-!- MISCELLANEOUS: THIS IS ONE OF THE HYPOTHETICAL PROTEINS
-!- THE OPEN READING FRAMES WITHIN THE REGION REQUITERS FOR A
                                                                 MOUSE
ITH3_MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hypothetical SEQUENCE 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pfam; PF03377; Avirulence; 2.
Hypothetical protein; Plasmid; Virulence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=341;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bacteria; Proteobacteria; gamma subdivision; Xanthomonas group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Plasmid pXV11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16-OCT-2001 (Rel. 40,
Hypothetical 122 kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-FEB-1996 (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Xanthomonas.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xanthomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REVISIONS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nterPro; IPR005042; Avirulence.
                                                                                                                                                                                        466
                                                                                                                                                                                                                                    191
                                                                                                                                                                                                                                                                                  409
                                                                                                                                                                                                                                                                                                                                164
                                                                                                                                                                                                                                                                                                                                                                              355
                                                                                                                                                                                                                                                                                                                                                                                                                       115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31 VREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNSCVAECAVNTI----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; X16130; CAA34257.1;
JQ0316; JQ0316.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SWISS-PROT entry is copyright. It is produced sen the Swiss Institute of Bioinformatics and arrangements of the Company of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VAIASHDGGKQALETVQRLLPVLCQAHGLTPQQVVAIASNGGGKQALETVQRLLPVLCQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LRGPPLQLDTGQLLKI-----AKRGGV-----TAVEAVHAWRNALTGAPLNLTPEQV
                                                                                                                                                                                        AIASNIGGKQALETVQALLPVLCQAHGLTPEQVVAI
                                                                                                                                                                                                                                                                                  LETVQRLLPVLCQAHGLTPEQVVAIASN----IGGKQALETVQALLPVLCQAHGLTPEQVV
                                                                                                                                                                                                                                                                                                                                                                           HGLTPQQVVAIAS---NSGGKQALETVQRLL---PVLCQAHGLTPEQVVAIASNGGGKQA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----KSDLEIFGRLTPV-------GDGIKMHETVINQMP----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                       PQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVC----FHVVSFADDAEGKAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1164 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          campestris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                      STANDARD;
36, Creat
36, Last
                                                                                                                                                                                                                                    EFVNS---VFCQEQILVTEEVVVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , Last sequence update)
, Last annotation update)
avirulence protein in AVRBS3 region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       122276 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 20.3%;
                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          įvو)
                                                                                                                                                                                                                                                                                                                                -DQIVALNSGSVLVDGLQLLQN----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34;
sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               vesicatoria).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score
                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FA0F81BEB9FB7515 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81.5;
update)
                                                                      886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           noved. Usage by and for commercial
(See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   on of the avirulence vesicatoria.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23
                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DВ
                                                                                                                                                                                        501
                                                                                                                                                                                                                                    211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1164;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                -PAVCQ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     through a c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VIRULENT
IN SPECIFIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              117;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AVRBS3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CODED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       collaboration
L outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ВΥ
                                                                                                                                                                                                                                                                                                                                                                                                                          163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98
                                                                                                                                                                                                                                                                                  465
                                                                                                                                                                                                                                                                                                                                190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         по
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 얽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13;
```

Ś

76

SCVAECAVNTIKSDLEIFGR-----LTPVGDGIKMHETVING

-MPPQAA--VIL

121

7;

----

```
밁
                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EC STRAINE-STRING INSUE-LIVEY;

XX MEDLINE-95194326; PubMed=7534067;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-L., Raguenez G., Salier J.-P.;

X Chan P., Risler J.-P.;

X MEDLINE-95194326; PubMed=7534067;

X MEDLIN-95194326; PubMed=7534067;

X MEDLINE-95194326; PubMed=7534067;

                                                                               Best Loc
Matches
                                                                                                                        Query Match
                                                                                                                                                                                                       PROPEP
DOMAIN
CARBOHYD
CARBOHYD
BINDING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute. The use by non-profit institutions as for modified and this statement is not removed. entitles requires a license agreement (See lor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWI
between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus (Mouse)
Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16-OCT-2001 (Rel. 40, Last annotation update)
Inter-alpha-trypsin inhibitor heavy chain H3 precursor (ITI heavy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ÷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 chain H3)
                                                                                                                                                                                                                                                                                                                                 CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=10090;
                                                                                                                                                                SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; X70393; CAA49843.1; -.
                                                                                                                                                                                                                                                                                                                                                     PROPEP
                                                                                                                                                                                                                                                                                                                                                                        SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                 Serine
                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS50234;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MGD; MGI:96620; Itih3
284
                                                                                                                                                                                                                                                                                                                                                                                                .ycoprotein.
                                        16
                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUBUNIT: I PLAPHA-I PLASMA PROTEASE INHIBITORS ARE ASSEMBLED FROM ONE OR TWO HEAVY CHAINS (H1, H2 OR H3) AND ONE LIGHT CHAIN, BIKUNIN. INTER-ALPHA-INHIBITOR (I-ALPHA-I) IS COMPOSED OF H1, H2 AND BIKUNIN, INTER-ALPHA-LIKE INHIBITOR (I-ALPHA-LI) OF H2 AND BIKUNIN, AND PRE-ALPHA-INHIBITOR (P-ALPHA-I) OF H3 AND BIKUNIN. AND PRE-ALPHA-INHIBITOR (P-ALPHA-I) OF H3 AND BIKUNIN. TISSUE SPECIFICITY: EXPRESSED IN BOTH LIVER AND BRAIN. PYM: HEAVY CHAINS ARE INTERLINEED WITH BIKUNIN VIA A CHONDROITIN PYM: HEAVY CHAINS ARE INTERLINEED WITH BIKUNIN VIA A CHONDROITIN A-SULFATE BRIDGE TO THE THEIR C-TERMINAL ASPARTATE (BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: BELONGS TO THE ITIH PAMILY. SIMILARITY: CONTAINS 1 VWFA DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY)
                                    YLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SWISS-PROT entry is copyright. It is produced through
FVIDVSGSMSGR-----KIQQTREALLKILDDVKEDDY----LNFILFSTDVT--TWK 330
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pro; IPR002035; VWF_A.
PF00092; VWA; 1.
'; SM00327; VWA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                 protease
                                                                                 31;
                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the Swiss Institute of Bioinformatics and the E
pean Bioinformatics Institute. There are no rest
non-profit institutions as long as its content
                                                                                                                                                                   988
                                                                                                                                                                                                           647
279
88
577
646
                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                 1
19
31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N.A.
                                                                                                                                                                A
A
                                                                                                                                                                                                                                                                                                                                                                                                                   inhibitor;
                                                                                                                                                                                                                                                                                                                                                                                                                                        VWFA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chordata;
Rodentia;
                                                                                                                                                                                                           886
439
88
577
646
                                                                                                                                                                                                                                                                                                                               18
30
646
                                                                                                                                                                   98977
                                                                                                       22.6%;
                                                                                                                                                                   X.
                                                                                   ω
ω
•
                                                                                                                                                                                                                                                                                                                                                                                                                   Repeat; Signal;
                                                                                                                                                                             N-LINKED (GLCNAC...)
N-LINKED (GLCNAC...)
CHONDROITIN 4-SULFATE, (
(BY SIMILARITY).
                                                                                                                        Score
                                                                                                                                                                                                                                                                          WWFA.
                                                                                                       Pred.
                                                                                                                                                                                                                                                                                         BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                     POTENTIAL.
BY SIMILARITY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                 INTER-ALPHA-TRYPSIN
                                                                                                                                                                   15955308C7F5030A CRC64;
                                                                                   Mismatches
                                                                                                       81;
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (See http://www.isb-sib.ch/announce,
                                                                                                  DB
18;
                                                                                                                          1;
                                                                                                                                                                                                                                                                                                                                                                                                                   Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Usage by
                                                                                 45;
                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                      INHIBITOR HEAVY
                                                                                   Indels
                                                                                                                                                                                                           ) (POTENTIAL)
) (POTENTIAL)
, CROSS-LINK
                                                                                                                                                                                                                                                                                                                                                                                                                   family;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ø
                                                                                     28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             collaboration -
                                                                                                                                                                                                                SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   group
                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             commercial
                                                                                                                                                                                                                                                                                                                                      CHAIN
                                          75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
```

```
CADH ME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                           entities
or send a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P31656;
01-JUL-1993
01-JUL-1993
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDSA
                                                                       Pfam; PF(
PROSITE;
                                                                                                                                                        use by non-profit institutions as long modified and this statement is not remove entitles requires a license agreement (so or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                  Brill E.M., Abrahams S., Hayes C.M., Jenkins C.L., Watson J.M., "Molecular characterization and expression of a wound-inducible encoding a novel cinnamyl-alcohol dehydrogenase enzyme in lucerr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       van Montagu M., Inze D.;
"Isolation of cinnamyl alcohol
economic species: alfalfa and p
of the gene within angiosperms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A. STRAIN=cv. Apollo; van Doorsselaere J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosiceurosids I; Fabales; Fabaceae; Papilionoideae; Trifolieae; Medicae
                                                                                          InterPro; IPR002328; ADH_zinc.
InterPro; IPR002085; Adh_zn_fa
                                                                                                                EMBL; AF083332; AAC35845.1; -. PIR; S31572; S31572.
                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN
                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=20044095;
                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=CV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A., AND CHARACTERIZATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Medicago sativa (Alfalfa).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Cinnamyl-alcohol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CADH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            122
                                                                                                                                                                              European Bioinformatics Institute. The by non-profit institutions as long ified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LTDGHNNLGMNPVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LIDGDANTGESRPEKIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DHLVQATPANLK-EAKTFVKNIHDQSMTNINDGLLKGIEMLNKAREDHTVPERSTSIIIM
                                                                                                                                     Z19573; CAA79625.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Physiol. Biochem.
                                                                                 PF00107;
                                                      F00107; adh zinc; ...;
; PS00059; ADH ZINC; ]
                                                                                                                                                                                                                                                                                                                                                                                                                                              Siriver;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Rel.
       48
70
101
104
107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٠
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 26, Created)
. 26, Last sequence update)
. 41, Last annotation updat dehydrogenase (EC 1.1.1.19
                                                                                                                                                                                                                                                                                                                                                                                                                                    r; TISSUE=Stem;
PubMed=10579494;
      48
70
101
104
107
                                                                                      Adh_zn_family.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Baucher M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                alcohol dehydrogenase cDNAs i
lfa and poplar. Demonstration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              33:105-109(1995).
    ; Lignin biosynthesis.
ZINC (CATALYTIC) (B)
ZINC (CATALYTIC) (B)
ZINC (SECOND ATOM)
ZINC (SECOND ATOM)
ZINC (SECOND ATOM)
                                                                                                                                                                    is not removed. Usage by and for commercial agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Feuillet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ion update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 358
                                                                                                                                                                                      There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  c.,
(BY SIMILARITY).

TC) (BY SIMILARITY).

TOM) (BY SIMILAFT

M) (BY SIMIT

1) (BY SIMIT
                                                                                                                                                                                                                                                                                                                                             INAL STEP IN A B. PRODUCTION OF L. YL-, 4-COUMARYL-
                                                                                                                                                                                                                                                                                                                         NADP(+)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cDNAs from two in
tration of a high
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Boudet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (CAD)
                                                                                                                                                                                                                                                         ALCOHOL
                                                                                                                                                                                                                                                                              Ħ
                                                                                                                                                                                                                                                                                                                         = cinnamaldehyde
                                                                                                                                                                                                                                                                              STEM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ×
                                                                                                                                                                                                                                                         DEHYDROGENASE
                                                                                                                                                                                                                                                                                                                                                                                                   in lucerne
                                                                                                                                                                                                                                                                                                                                              LIGNIN
L- AND
                                                                                                                                                                                                                EMBL
                                                                                                                                                                                                                                                                              HYPOCOTYL,
                                                                                                                                                                                                                                                                                                                                                                  BRANCH
                                                                                                                                                                                                               a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Medicago.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                              CDNA
                                                                                                                                                                                                                                                                                                                                                                   õ
                                                                                                                                                                                         n on
```

```
RESULT 11
GPD1_YEAST
  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                Andre B.,
Submitted
[5]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A., AND SEQUENCE.
SEQUENCE FROM N.A., AND SEQUENCE.
MEDLINE=95020570; PubMede7934860;
Larsson K., Ansell R., Eriksson P., Adler L.;
Larsson K., Ansell R., Eriksson P., Adler L.;
The sequence of the sequence
                                                                                                                                                                                                                                                                                                                               pathway.
Mol. Cel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01-JUL-1993 (Rel. 26, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Glycerol-3-phosphate dehydrogenase [NAD+] 1 (EC 1
GPD1 OR OSG1 OR DAR1 OR HOR1 OR YDL022W OR D2830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               METAL
METAL
SEQUENCE
                                                                                                                                                  MEDLINE=95050285; PubMed=7961476; Wang H.T., Rahaim P., Robbinns P., Yocum R.R.; "Cloning, sequence, and disruption of the Saco DAR1 gene encoding a glycerol-3-phosphate dehgr. Bacteriol. 176:7091-7095(1994).
                                                                                                                                                                                                                                                                                                                                                                      Albertyn J., Hohmann S., Thevelein J.M., Prior B.A.;
"GPD1, which encodes glycerol-3-phosphate dehydrogenase, is essential
for growth under osmotic stress in Saccharomyces cerevisiae, and its
expression is regulated by the high-osmolarity glycerol response
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          200055;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GPD1_YEAST
                                                                                    SEQUENCE FROM STRAIN=S288c;
                                                                                                                                                                                                                                                                   STRAIN=J132B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE=94254870;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomycetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Fungi; Ascomycota; Saccharomycotina;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Saccharomyces cerevisiae (Baker's yeast)
SEQUENCE
                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D-GIKM-----HETVINQMPPQAAVILLTDGHNN-----LGM---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSFVGSVKETEEMLEFWKEKGLTSMIEIVTMDYINKAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QEFVNSV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --NPVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSGSVLVDGLQLLQNPAVC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HMGVKVAKALGHHVTVISSSDKKKKEALEDLGADNYLVSSDTVGMQEAADSLDYIIDTVP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              - FAESTVVEQKFVVKI PEGLAPEQVAPLLCAGVTVYSPLSHFGLKTPGLRGGILGLGGVG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TFAPYSVI-----IPQGSWNSCVAE--CAVNTIKSDLEIFGRLTP------VG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEIEQYCNKKIWSYNDV--YTDG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEVTASCTKRVESYNYLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VGHPLEPYLSLLK-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        l Similarity
63; Conserv
ç
                                                                                                         FROM
                                                                                                                                                                                                                                                                                        FROM
                                         Vissers S., (FEB-1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115
164
358
                                                                                                                                                                                                                                                                                                                                   Biol. 14:4135-4144(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                         N.A.
                                                                                                                                                                                                                                                                                        N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=8196651;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               115
164
38948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Saccharomycetaceae; Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FCQEQILVTE-EVVVLRGVNFAF
                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22
                                         Urrestarazu L.;
co the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₹
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----IDGKLILMGVI--NTPLQFVTPMVMLGRKSIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 80.5;
Pred. No. 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZINC (SECOND ATOM)
ZINC (CATALYTIC) (I
FBA609408D01BF56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               è
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      몂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATOM) (BY SIMILARITY) . ric) (BY SIMILARITY) .
                                                                                                                                                                         dehydrogenase.";
                                                                                                                                                                                              Saccharomyces diastaticus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          69;
                                           databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     --KIT------QGG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         cerevisiae.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
8)
.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (NAD+)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          111;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15;
```

```
RESULT 12
YA79_SCHPO
ID YA79_SCHPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PIR; S34641; S34641.

PIR; S40059; S40059.

SGD; S0002180; GPD1.

InterPro; IPR001652; NAD_Gly3P_dh.

PEAm; PF01210; NAD_Gly3P_dh; 1.

PRINTS; PR00077; GPDHDRGNASE.

PROBOT; PD001649; NAD_Gly3P_dh; 1.

PROSITE; PS00957; NAD_GSPDH; 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; Z24454; CAA80827.1; -.
EMBL; X76859; CAA54189.1; -.
EMBL; U46621; AAA64936.1; -.
EMBL; Z48432; CAA88337.1; -.
EMBL; Z74071; CAA88532.1; -.
EMBL; M38740; AAA18631.1; -.
PIR; PQ0148; PQ0148.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - I- CATALYTIC ACTIVITY: Sn-glycerol 3-phosphate + phosphate + NADH.
- I- SUBCELLULAR LOCATION: Cytoplasmic (Potential).
- INDUCTION: BY OSMOTIC STRESS.
- I- SIMILARITY: BELONGS TO THE NAD-DEPENDENT GLYCE DEHYDROGENASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=91285439; PubMed=1676389; Sleep D., Ogden J.E., Roberts N.A., Goodey A.R.; Sleep D., Ogden J.E., Roberts On A., Goodey A.R.; Cloning and characterisation of the Saccharomyces cerevisiae glycerol-3-phosphate dehydrogenase (GUT2) promoter.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE OF 8-16; 95-108 AND 160-
STRAIN=ATCC 38531 / Y41;
MEDLINE=97089742; PubMed=8935650;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharomyces cerevisiae. FEMS Microbiol. Lett. 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gene 101:89-96(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -!- CAUTION: WAS ORIGINALLY (REF.5) THOUGHT TO BE DEPENDENT GLYCEROL-3-PHOSPHATE DEHYDROGENASE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Norbeck J., Blomberg A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                between the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Protein expression during
                                                                                                                                185
                                                                                                                                                                              217
                                                                                                                                                                                                                               143
                                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                                                                                                                                                 111
                                                                                                                                                                                                                                                                                                                                                                                                                                  34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64
                                                                                                                                                                                                                                                                                                                                94
                                                                                                                             ×
                                                                                                                                                                                                                                                                                                                                                                                 NOMPPOAAVILLTDGHNNLGMNP--VEEVKSI-----YOTNPNVCFHVVSFADDAEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PYSV-IIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVG-----DGIKMHETV-----I
                                                                                                                                                                                                                                                                               KAIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTEEVVV----LRGVNF
                                                                                                                                                                                                                                                                                                                                KYLPG----ITLPD----NLVANPDLIDSVKDVDIIVFNIPHQFLPRICSQLKGHVD----
                                                                                                                                                                                                                                                                                                                                                                                                                               PFKVTVIGSGNWGTTIAKVVAENCKGYPEVFAPIVOMWVFEEEINGEKLTEIINTRHONV
                                                                                                                                                                                                                               -SHVRAISCLKGFEVGAKGVQLLSS---
                                                                                                                                                                                217
                                                                                                                                185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Swiss Institute of Bioinformatics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lett. 137:1-8(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     95-108 AND 160-173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 exponential growth in 0.7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score
          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No.
          753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GLYCEROL-3-PHOSPHATE
                                                                                                                                                                                                                               --YITEELGIQCGALSGANI 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GUT2,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAD (+)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5; AAA18631)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NaCl medium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gh a collaboration - EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56
'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               glycerone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     110
                                                                                                                                                                                                                                                                                                                                                                                                                                    93
                                                                                                                                                                                                                                                                               216
                                                                                                                                                                                                                                                                                                                                142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10;
```

```
RA Wood V, Gwilliam R., Rajandream M.A., Lyne M., Lyne M., Stewart A.,
RA Sgouros J., Peat N., Hayles J., Basker S., Basham D., Bowman S.,
RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,
RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,
RA Gollins M., Connor R., Cronin A., Davis P., Fellwell T., Fraser A.,
RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,
RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,
RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,
RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,
RA Holroyd S., Hornsby T., Howarth S., Huckle E.J., Hunt S., Jagels K.,
RA Holroyd S., Wolle S., Mungall K., Murphy L., Niblett D., Odell C.,
RA Oliver K., O'Neil S., Pearson D., Quail M.A., Rabbinowitsch E.,
RA Rutherford K., Rutter S., Saunders D., Seeger K., Sharp S.,
RA Raylor K., Taylor R.G., Tivey A., Walsh S.V., Warren T., Whitehead S.,
RA Taylor K., Taylor R.G., Tivey A., Walsh S.V., Warren T., Whitehead S.,
RA Weltjens I., Vonstreels E., Reieger M., Schaefer M., Weller-Auer S.,
RA Weltjens I., Vonstreels E., Reiger M., Schaefer M., Weller-Auer S.,
RA Gabel C., Fuchs M., Fritzc C., Holzer E., Moestl D., Hilbert H.,
RA Borzym K., Langer I., Beck A., Lehrach H., Reinhardt R., Pohl T.M.,
RA Geffeau A., Cadieu E., Dreano S., Gloux S., Lelaure V., Mottier S.,
RA Galibert F., Aves S.J., Xiang Z., Hunt C., Moore K., Hurst S.M.,
RA Lucas M., Rochet M., Gaillardin C., Tallada V.A., Garzon A., Thode G.,
RA Daminguez A., Revuelta J.L., Moreno S., Armstrong J., Forsburg S.L.,
RA Cerrutti I., Lowe T., McCombie W.R., Paulsen I., Potashkin J.,
RA Shpakovski G.V., Ussery D., Barrell B.G., Nurse P.;
RT "The genome sequence of Schizosaccharomyces pombe.";
RT Nature 415:871-808 (2002).
                                                                          g
                                                                                                                Ś
멍
                                 8
                                                                                                                                                         Query Match
Best Local S
Matches 48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q09763;
01-NOV-1995 (Rel. 32,
01-NOV-1995 (Rel. 32,
15-JUN-2002 (Rel. 41,
Hypothetical protein (
                                                                                                                                                                                                                                                                                                                                                                                                                                                            use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=4896;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bukaryota; Fungi; Ascomycota; Schizosaccharomycetes;
Schizosaccharomycetales; Schizosaccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Schizosaccharomyces pombe (Fission yeast)
                                                                                                                                                                                                                                                                                                Pfam; PF00621; RhoGEF; 1.
SMART; SM00325; RhoGEF; 1.
PROSITE; PS00741; DH 1; FALSE_NEG.
PROSITE; PS50010; DH_2; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           between the Swiss Institute of Bioinf
the European Bioinformatics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=21848401; PubMed=11859360;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; Z54142; CAA90853.1; -.
                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                             Hypothetical protein
DOMAIN 311 5
                                                                                                                                                                                                                                                                                                                                                                                 InterPro; IPR001331; GDS_CDC
InterPro; IPR000219; RhoGEF.
328
                                                                              268
                                       99
                                                                                                                    12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: CONTAINS 1 DBL-HOMOLOGY (DH) DOMAIN.
NDLIAIQQSYGLRVKECSALNPVDAQTVFGDIESLLTFTVEFHSRLYQAGEGSWRVNLDT
                                     -SVIIPQGSWNSCVAEC-AVNTIKSD------LEIFGRLTPVGDG---IKMHE 107
                                                                            ESLSRTISYATTSLPSTPGKRLSKESLAMSEASSINPEYKRIKKRANLIKELVTTEAAYL
                                                                                                                  ESYNYLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLY----
                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                        311
753 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Rel. 32,
(Rel. 32,
(Rel. 41,
                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                               507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2, Last sequen
1, Last annota
n C24H6.09 in
                                                                                                                                                                                                                                          84485 MW;
                                                                                                                                                                            7.1%; Score 80;
21.5%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence up
                                                                                                                                                             38;
                                                                                                                                                                                                                        DH.
; 5740A1AE0D67F207 CRC64;
                                                                                                                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            chromospme
                                                                                                                                                                                  18;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               There are no restrictions
                                                                                                                                                             85;
                                                                                                                                                                                                     Length 753
                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ig
for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Benito J.,
                                                                                                                          -TFAPY-
                                                                                                                                                                52;
                                                                                                                                                             Gaps
                                                                                                                          58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>،</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ဋ္ဌ
                                                                                                                                                                10;
```

```
RA Wood V., Gwilliam R., Rajandream M.A., Lyne M., Lyne R., Stewart A.,
RA Sgouros J., Peat N., Hayles J., Baker S., Basham D., Bowman S.,
RA Brooks K., Brown D., Brown S., Chillingworth T., Churcher C.M.,
RA Collins M., Connor R., Cronin A., Davis P., Feltwell T., Fraser A.,
RA Collins M., Connor R., Cronin A., Davis P., Feltwell T., Fraser A.,
RA Holroyd S., Hornsby T., Howarth S., Huckle B.J., Hunt S., Jagels K.,
RA James K., Jones L., Jones M., Leather S., McDonald S., McLean J.,
RA James K., Jones L., Jones M., Leather S., McDonald S., McLean J.,
RA James K., Jones L., Jones M., Leather S., Rabbinowitech E.,
RA Mooney P., Moule S., Mungall K., Murphy L., Niblett D., Odell C.,
RA Mooney P., Moule S., Mungall K., Murphy L., Niblett D., Odell C.,
RA Rutherford K., Rutter S., Saunders D., Seeger K., Sharp S.,
RA Rutherford K., Rutter S., Saunders D., Seeger K., Sharp S.,
RA Rutherford K., Rutter S., Saunders D., Seeger K., Sharp S.,
RA Weltjens I., Volckaert G., Aert R., Robben J., Grymonprez B.,
RA Weltjens I., Vanstreels E., Rieger M., Schaefer M., Mueller-Auer S.,
RA Weltjens I., Vanstreels E., Rieger M., Schaefer M., Mueller-Auer S.,
RA Weltjens I., Vanstreels E., Rieger M., Schaefer M., Mueller-Auer S.,
RA Borzym K., Langer I., Beck A., Lehrach H., Reinhardt R., Pohl T.M.,
RA Borzym K., Cadieu E., Dreano S., Gloux S., Lelaure V., Mottier S.,
RA Gailbert F., Aves S.J., Xiang Z., Hunt C., Moore K., Hurst S.M.,
RA Lucas M., Rochet M., Gaillardin C., Tallada V.A., Garzon A., Thode G.,
RA Dominguez A., Revuelta J.L., Moreno S., Armstrong J., Forsburg S.L.,
RA Cerrutti L., Lowe T., McCombie W.R., Paulsen I., Potashkin J.,
The genome sequence of Schizosaccharomyces pombe.";
The genome sequence of Schizosaccharomyces pombe.";
The genome sequence of Schizosaccharomyces pombe.";
RESULT
RPC2_SC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUN-2002 (Rel. 34, Last sequence update)
Putative DNA-directed RNA polymerase III 130 kDa polypeptide
(EC 2.7.7.6) (RNA polymerase III subunit 2).
RPC2 OR SPAC4G9.08C.
Schizosaoch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RPC2 SCHPO
Q10233;
01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=21848401; PubMed=11859360; Wood V., Gwilliam R., Rajandream M.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SCHPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Schizosaccharomyces pombe (Fission yeast).
Eukaryota; Pungi; Ascomycota; Schizosaccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Schizosaccharomycetales; Schizosaccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                108
                                                                           POLYMERASE III.
SUBCELLULAR LOCATION: Nuclear (Potential).
MISCELLABOUS: THREE DISTINCT ZINC-CONTAINING RNA POLYMERASES AN FOUND IN EUKARYOTIC NUCLEI: POLYMERASE I FOR THE RIBOSOMAL RNA PRECURSOR, POLYMERASE II FOR THE MRNA PRECURSOR, AND POLYMERASE III FOR TSS AND TRIA GENES.
SIMILARITY: BELONGS TO THE RNA POLYMERASE BETA CHAIN FAMILY.
                                                                                                                                                                                                                                                                                         FUNCTION: DNA-DEPENDENT RNA POLYMERASE CATALYZES THE TRANSCI
OF DNA INTO RNA USING THE FOUR RIBONUCLEOSIDE TRIPHOSPHATES
SUBSTRATES (BY SIMILARITY).

CATALYTIC ACTIVITY: N nucleoside triphosphate = N diphosphat
                                                                                                                                                                                                                             SUBUNIT: RNA POLYMERASE III SUBUNITS. THIS SUBUNIT IS THE
                                                                                                                                                                                                                                                                            (RNA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----AEGKAIIDQIV-ALNSGSVLVDGLQ-LLQNPAVCQEFVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASWIMEGDKIVQKYTNÁWDLĠSLIIKPLQRLĹKYPLLLQKIID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QLIDPLP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TVINOMPPOAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVC-----FHVVSFADD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A.
                                                                                                                                                                                                                                                                            Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CNLGLIFLESLSEIGQIYTGYCNRQDSVFKIITKWREKPAT 435
                                                                                                                                                                                                                               THE SECOND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1165
                                                                                                                                                                                                                               OF ABOUT 15 DIFFEI LARGEST COMPONENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            194
                                                                                                                                                                                                                                                                                           N diphosphate
                                                                                                                                                                                                                             PONENT OF I
                                                                                                                                                                                                                                                                                                                                                            TRANSCRIPTION
                                                                                                                                                                                                                               RNA
                                                                                                                                                                 ARE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              157
```

This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -

European

Bioinformatics

Institute.

There are

ö

restrictions

entities or send a

and for

50

.ch/announce/

```
RESULT
IDI_RHC
ID II
       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOSSEREES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RHOSH
IDI RHO
Q9Z5D3;
                                                 use by modified
                                                                                                                                                                                                                                                                                             Hypothetical protein; Transferase; DNA-directed RNA Transcription; Zinc; Zinc-finger; Nuclear protein. ZN FING 1111 1126 C4-TYPE (POTENTIAL). SEQUENCE 1165 AA; 130238 MW; 6690055F257EC0EB CR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; Z69727; CAA93558.1; -. InterPro; IPR001572; RNA_pol_B.
                                                                                                  the
                                                                                                                                                                                                                                                                                        -
                                                                                                                                                                                                                                                                                                                                                                                                  "DNA sequence analysis of the sphaeroides 2.4.1.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=ATCC 17023 /
MEDLINE=20115911; Pu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rhodobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00562; RNA pol B; 1.
PROSITE; PS01166; RNA POL BETA; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Choudhary M., Kaplan S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
Addlesee H.A., Nay
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=1063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rhodobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Probable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      30-MAY-2000
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        30-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               somerase)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          325
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      53
s SWISS-PROT entry is copyright. It is produced through a cween the Swiss Institute of Bioinformatics and the EMBL European Bioinformatics Institute. There are no restrict by non-profit institutions as long as its content is lified and this statement is not removed. Usage by and fo ities requires a license agreement (See http://www.isb-sib-send an email to license@isb-sib.ch).
                                                                                                                                                   diphosphate.

diphosphate.

diphosphate.

paTHWAY: Chlorophyll biosynthesis.

SUBCELLULAR LOCATION: Cytoplasmic (By similarity).

SUBCELLULAR LOCATION: THE IPP ISOMERASE TYPE I FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 AEVTASCTKRVESYNYLVDYSGSMMMKHVAVRE--PKIELAKEAILKIN-----AAMPK 52
                                                                                                                                                                                                                                                                                      DIMETHYLALLYL DIPHOSPHATE CATALYTIC ACTIVITY: Isopen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RHOSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ASVTSSTHER-KSKTYVITKNGKLYLKHNSVADDIPIVVVLKAMGLQSDQEIFELVAGAB 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANRLPPHEEALEVLAAVVLAHINVFNLEFRP----KAVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INOMPPO-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ASYQD---LFAP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MSYQGGLYTFAPYSVIIPQGSWNSCVAECA---VNTIKSDLEIFGRLTPVGDGIKMHETV 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  non-profit institutions w _____ Usage by and the statement is not removed. Usage by and the transce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     000 (Rel. 39, Created)
000 (Rel. 39, Last sequence update)
002 (Rel. 41, Last annotation update)
1002 (Rel. 41, Last annotation update)
1004 (Rel. 41, Last annotation update)
1005 (Rel. 30, Last annotation update)
1006 (Rel. 39, Created)
1007 (Rel. 39, Created)
1008 (Rel. 39, Created)
1009 (Rel. 39, Created)
1009 (Rel. 39, Created)
1009 (Rel. 39, Created)
1009 (Rel. 39, Created)
1000 (Re
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.A., Naylor G.W.;
(FEB-1999) to the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sphaeroides (Rhodopseudomonas
roteobacteria; alpha subdivisio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=10648776;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -AAVILLTDGHNNLGMNPVEEVKSIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.4.1 / NCIB 8253 / DSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7.18;
                                                                                                                                                                                                                                                                                      Isopentenyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---SIEECAKLNIYTAQQALEYIGARVKVN-----RRAG 324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 79.5;
Pred. No. 35;
                                                                                                                                                                                                                                                                                                                                                                                                                               photosynthesis region of Rhodobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                        diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sphaeroides).
on; Rhodobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1;
                                                                                                                                                                                                                                                                                        п
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 1165;
                                                                                                                                                                                                                                                                                        dimethylallyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             polymerase;
                                                                                           restrictions
                                                                                                                        gh a collaboration -
EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                43;
                                                                                                  outstation -
:ions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
```

```
THEOUTH IN COLUMN THE 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOFT KW DR DR CC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; AJ010302; CAB38734.1; -.

EMBL; AF195122; AAF24284.1; -.

InterPro; IPR002667; IPP_isomerase.

InterPro; IPR000086; NUDIX_hydrolase.

Pfam; PF00293; NUDIX; 1.

ProDom; PD004109; IPP_isomerase; 1.

Isomerase; Isoprene biosynthesis; Photosynthesis;
Chlorophyll biosynthesis.

ACT_SITE 62 62 BY SIMILARITY.

ACT_SITE 110 110 BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              024024;
16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.

STRAIN=26695 / ATCC 700392;

MEDLINE=97394467; PubMed=9252185;

Tomb J.-F., White O., Kerlavage A.R., Clayton R.A., Sutton G.G.,

Tleischmann R.D., Ketchum K.A., Klenk H.-P., Gill S., Dougherty B.A.,

Nelson K., Quackenbush J., Zhou L., Khalak H.G., Peterson S.,

Nelson K., Richardson D., Dodson R., Khalak H.G., Glodek A.,

Loftus B., Richardson D., Dodson R., Khalak H.G., Glodek A.,

McKenney K., FitzGerald L.M., Lee N., Adams M.D., Hickey E.K.,

McKenney K., Focayne J.D., Utterback T.R., Peterson J.D., Kelley J.M.,

Cotton M.D., Weidman J.M., Fujii C., Bowman C., Watthey L., Wallin E.

Hayes W.S., Borodovsky M., Karp P.D., Smith H.O., Fraser C.M.,

Venter J.C.;
use by non-profit institutions as long as its content modified and this statement is not removed. Usage by an entities requires a license agreement (See http://www.isb-or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HELPY
                                                                                                                                                            This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                 Nature 388:539-547(1997).
-!- CATALYTIC ACTIVITY: O-phospho-L-homoserine + H(2)O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Helicobacter pylori (Campylobacter pylori).
Bacteria; Proteobacteria; epsilon subdivision; Helicobacter group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                lelicobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26 MKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNSCVAECAVNT
                                                                                                                                                                                                                                                                                 phosphate.
COPACTOR: PYRIDOXAL PHOSPHATE (BY SIMILARITY).
PATHWAY: Threonine biosynthesis.
SIMILARITY: BELONGS TO THE SERINE/THREONINE DEHYDRATASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complete genome sequence of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DPEEVWET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EVKSIYQT 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IKSDLEIFGRLT-----PVGDGIKMHETVINQMPPQAAVILLTDGHNNLGMNPVE 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LRHMAI -- SVFVMAGEAVLIQRRAAGKY-HTPGLWA----NTCCTHPRWGEEAADCAVRR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LREELGITGLVTVFADRVEYRADVGNGLTEHEVV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
110
177 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110 I
20295 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 79;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           84AB789DF17ADFAB CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gastric pathogen Helicobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                           (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 1; Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        44; Indels
                                                                                                                                                                                                                                                                                                                                                                                                       = L-threonine
                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28;
                                                                                                            tor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .
H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6
```

```
Search co
Job time
                                                                                                                               S
                                                                                                                                                              밁
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                       SO FINANCIA
                                                                                                       밁
                                                                                                                                                                                    Ş
                                                                             S,
                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 41
                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                  Pfam; PF00291; PALP; 1.
TIGREPAMS; TIGR00260; thrC; 1.
PROSITE; PS00165; DEHYDRATASE_SER_THR; 1.
Threonine biosynthesis; Lyase; Pyridoxal phosphate; Complete BINDING 109 109 PYRIDOXAL PHOSPHATE (BY SIMILAR)
                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR001926; B6_enzyme_beta.
InterPro; IPR000634; S/T_dehydrtse.
InterPro; IPR004450; Thr_synthase.
                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AE000531; AAD07166.1; -. TIGR; HP0098; -.
                                                      172
                                                                                180
                                                                                                         112
                                                                                                                                   130
completed: April
ne : 29 secs
                                                                                                                                                              57
                                                                                                                                                                                      83
                                                                                                                                                                                                                                        30 AVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNSC-----VAECA 82
                                                                                                                                                                                                                 æ
                                                    LOMVTOSA
                                                                                                       ALQPLASIFSNLAVGKNEKYLMLVSTSGDTGPATLESLAGMPNVFVVCLYPKDGTSLVQK 171
                                                                                                                                  GMNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVAL--
                                                                                                                                                                                                                 SLKEKKIDFI-EAILNPNA--PK----GGLYTLERFETL----QWQDCLNLSYNDLVECV 56
                                                                               LQLLQNPA
                                                                                                                                                           FERL -- GLEIPKNL -- LASALKRYENFDNPKNP-APIFALNERLFVQELYHGPSLAFKDM 111
                                                                                                                                                                                     VNTIKSDLEIFGRLTPVGDGIKMHETVINQMPPQAAVILLTD------GHNNL 129
                                                                                                                                                                                                                                                                    41;
                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                       486 AA;
                                                                                                                                                                                                                                                                   Conservative
                                                       179
                                                                                 187
                                                                                                                                                                                                                                                                                                                       54706 MW;
             9
                                                                                                                                                                                                                                                                                 21.8%;
                                                                                                                                                                                                                                                                                            7.18;
                                                                                                                                                                                                                                                                    28;
                                                                                                                                                                                                                                                                 Pred. No. 13;
8; Mismatches
                                                                                                                                                                                                                                                                                 Score 79; DB
Pred. No. 13;
                                                                                                                                                                                                                                                                                                                         CD9637799B508988 CRC64;
                                                                                                                                                                                                                                                                                              ۲,
                                                                                                                                                                                                                                                                    73;
                                                                                                                                                                                                                                                                                             Length 486
                                                                                                                                                                                                                                                                                                                                     (BY SIMILARITY).
                                                                                                                                                                                                                                                                       Indels
                                                                                                                                     -NSGSVLVDG 179
                                                                                                                                                                                                                                                                      46;
                                                                                                                                                                                                                                                                      Gaps
```

10;

```
Title:
Perfect score:
Sequence:
                                                                           Database :
                                                                                                        Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OM protein - protein search, using sw model
                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                        Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                    Searched:
                                                                                                                                                                                                                                                                                                                                         Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Run on:
PIR 73:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*
                                                                                                                                                                                                                                                                                                                   BLOSUM62
Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2
1119
1 AEVTASCTKRVESYNYLVDY.....QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                               283224 seqs, 96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                   April 9, 2003, 14:28:37; Search time 44 Seconds (without alignments) 476.302 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                283224
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

	) i	ر م	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	80	7	6	<sub>U</sub>	4	ω	N		Result No.
9	0 0	90	80.5	80.5	81	81	81.5	81.5	82	82	82.5	83	83.5	84	86	87.5	90	90	90	90	90	90.5	92	92.5	93.5	97.5	99	106.5	126	Score
	3 -	<b>3</b> -		7.2	7.2	7.2	7.3	7.3	7.3		7.4	7.4	7.5	7.5	7.7	7.8	8.0	8.0	8.0	8.0	8.0	8.1	8.2	8.3	8.4		8.8	9.5	11.3	Query Match Length
7.5.5	2 1	110	358	339	986	547	1187	308	2205	913	209	1313	509	271	1090	932	1091	903	459	351	318	347	885	615	2848	400	426	224	227	
4	ه د	ا د	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Ь	N	N	N	N	N	N	N	N	Н	۲	BG
040000	30000	02020	S31572	E82211	S54355	T45635	JQ0316	E71697	T08615	JG0168	B82501	G82887	T12521	F70771	AG1749	JC5953	AF1380	G82516	S04904	S52708	E82493	G82862	S30350	AH2028	T32550	AG3016	A96268	H70062	G70062	₽
endsoud-c-rorackts	Ty Tallman Cliatil A	lambda abata u		conserved hypothet	ct		hypothetical 125K	probable proteinas	aggregation factor	-			hypothetical prote	- L	glycosidase homolo		-	hypothetical prote	glutamate dehydrog	hypothetical prote	conserved hypothet	conjugal transfer	rt		hypothetical prote	phosphoglycerate k	phosphoglycerate k	conserved hypothet	conserved hypothet	Description

45	44	43	42	41	40	39	38	37	36	35	34	33	32	ω H	30
79	79	79	79	79	79	79	79	79	79	79	79	79.5	80	80	80
7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
2183	1652	875	875	875	723	670	601	486	468	367	177	1165	2055	753	476
۲	N	N	N	_	N	N	N	N	N	N	N	N	N	N	N
G48556	I50711	D85862	B91018	ITECAP	PN0509	AI2223	C81715	B64532	861964	AH1893	T50740	T38867	T31110	S62411	T40086
genome polyprotein	complement C3 prec	DNA gyrase, subuni	DNA gyrase subunit	DNA topoisomerase	integrin beta-3 ch	transketolase [imp	gcpE protein TC032	threonine synthase	probable membrane	hydrogenase expres	isopentenyl diphos	probable DNA-direc	extracellular matr	probable guanine n	hypothetical prote

## ALIGNMENTS

S & & B	<u> </u>	Qy Z M Q	RES CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
QY 98 PYGDGLKMHETVINQMEP-QAAVILLITDGHNULGMNPYBEVKSIYQTRPNYCEHYVSFA 155 Db 128 PIAKALNEAKSSFDQLDAKGEKVVYLLTDGBETCGGNPIKTAKELQKDNITVNVIGF- 184 OY 156 DDAEG-KAIIDQIVALNSGSYLVDGLQLLQNPAVCQBEVNSVPCQEQILVTE 206	5 8 5 2 5 6 4	Query Match 11.3%; Score 126; DB 1; Length 227; Best Local Similarity 24.6%; Pred. No. 0.0014; Matches 57; Conservative 37; Mismatches 04; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 54; Gaps 11; Matches 57; Conservative 37; Mismatches 11; Indels 11; Ind	RESULT 1 G70062 Connerved hypothetical protein ywmC - Bacillus subtilis C;Species: Bacillus subtilis C;Species: Bacillus subtilis C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 21-Jul-2000 C;Accession: G70062 C;Accession: G70062 R;Kunst, F.; Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Berte C; Bron, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Ch A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E. Nature 390, 249-256, 1997 Nat

```
C;Species: Bacillus subtilis
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 21-Jul-2000
C;Accession: H70062
C;Accession: H70062
R;Kunst, F:, Ogasawara, N.; Moszer, I.; Albertini, A.M.; Alloni, G.; Azevedo, V.; Berter
C; Bron, S.; Brouillet, S.; Bruschi, C.V.; Caldwell, B.; Capuano, V.; Carter, N.M.; Chc
A.; Ehrlich, S.D.; Emmerson, P.T.; Entian, K.D.; Errington, J.; Fabret, C.; Ferrari, E.
A.; Althors: Foulger, D.; Fritz, C.; Fujita, M.; Fujita, Y.; Fuma, S.; Galizzi, A.; Galler
iech, J.; Harwood, C.R.; Henaut, A.; Hilbert, H.; Holsappel, S.; Hosono, S.; Hullo, M.F.
Koetter, P.; Koningstein, G.; Krogh, S.; Kumano, M.; Kurita, K.; Lapidus, A.; Lardinois,
A.Authors: Lauber, J.; Lazarevic, V.; Lee, S.M.; Levine, A.; Liu, H.; Masuda, S.; Maueel
Y., M.; Ogawa, K.; Ogiwara, A.; Odega, B.; Park, S.H.; Parro, V.; Pohl, T.M.; Portetelle
Rleger, M.; Rivolta, C.; Rocha, E.; Roche, B.; Rose, M.; Sadaie, Y.; Sato, T.; Scanlon,
A.Authors: Schleich, S.; Schroeter, R.; Scoffone, F.; Sekiguchi, J.; Sekowska, A.; Seror
akeuchi, M.; Tamakoshi, A.; Tanaka, T.; Terpstra, P.; Tognoni, A.; Tosato, V.; Uchiyama,
T.; Winters, P.; Wipat, A.; Yamamoto, H.; Yamane, K.; Yasumoto, K.; Yata, K.; Yoshida, K.
A.; Tatle: The complete genome sequence of the Gram-positive bacterium Bacillus subtilis.
A.; Accession: H70062
A. Stataris, Turcliff, acid sequence of the Gram-positive bacterium Bacillus subtilis.
                                                                                                                                                                                                                                                                                                                                                                                 phosphoglycerate kinase, pgk (AF256214) [imported] - Agrobacterium tumefaciens C;Species: Agrobacterium tumefaciens C;Date: 22-Oct-2001 #sequence_revision 22-Oct-2001 #text_change 11-Jan-2002 C;Accession: A96268
                                                                                                                                                                                                                                                                                       R;Goodner, B.; Hinkle, G.; Gattung, S.; Miller, I
A.; Liu, F.; Wollam, C.; Allinger, M.; Doughty,
Science 294, 2323-2328, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                        A; Molecule type: DNA
A; Residues: 1-426 < KUR>
                                                                                                                                                                                                                                 A; Title: Genome Sequence of the Plant Pathogen and A; Reference number: A97359; PMID:11743194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     conserved hypothetical protein ywmD - Bacillus subtilis
                                                                                                                                                                              A;Status: preliminary
                                                                                                                                                                                                         A; Accession: A96268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Molecule type: DNA
Residues: 1-224 <KUN>
;Map position:
                                                                                          ;Cross-references: GB:AE007870; PIDN:AAK89667.1; PID:g15159569; GSPDB:GN00170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Experimental source:
                                       Gene: AGR L 2193
                                                                  Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cross-references: GB:Z99122;
Experimental source: strain 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Status: preliminary; nucleic acid sequence not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DQIVALNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAII 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPK-----MSYQGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LFDGSGSMVQK--TGGERKIDIAKKSVKSFAELLPKDTNLMLRVFGHAGNNKLSGKALSC 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STTETIYGLHPYEGSLFDNSLSELKPTG-WTP-IAKALADT-RKEFEAFD-----ADG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ----LYTFAPY-----SVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTFVGDGIK 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical protein ywmC
         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----KNVVYLITDGEETCGGDPAAEIEKLRASNVDTIVNIIGFNFDVKGNEEM 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
         chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9.5%;
21.9%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          , GB:AL009126; NID:g2636029; PIDN:CAB15690.1; PID:g2636198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 106.5;
Pred. No. 0.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                     Miller, N.; Blanchard, M.; Qurollo, B.; Goldr
Doughty, D.; Scott, C.; Lappas, C.; Markelz,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .067;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         shown; translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       66;
                                                                                                                                                                                                                                                               Biotechnology Agent Agrobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                224;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (strain
                                                                                                                                                                                                                                                                                                                                                   Goldman
                                                                                                                                                                                                                                                                                                                           W
```

```
RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Wood, D.W.; Setubal, J.C.; Kaul, R.; Monks, D.; Kerage, G.; Gillet, W.; Grant, C.; Guenthner, D.; K.; Karp, P.; Romero, P.; Zhang, S.; Science 294, 2317-2323, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                  hypothetical protein F33D4.2a - Caenorhabditis elegans C;Species: Caenorhabditis elegans C;Date: 29-Oct_1999 #sequence_revision 29-Oct_1999 #te
                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ster, E.W.
A;Title: The Genome of the Natural Genetic
A;Reference number: AB2577; PMID:11743193
A;Accession: AG3016
A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Superfamily: phosphoglycerate kinase
        C;ACCESBLUM: C. C. C;ACCESBLUM: D.; Stellyes, L. R;Johnson, D.; Stellyes, L. submitted to the EMBL Data Library, Decemb submitted to the EMBL Data Library, Decemb submitted to the EMBL Data Library, Decemb
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Gene: pgk
A; Map position: linear chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             phosphoglycerate kinase pgk [imported] - Agrobacterium tumefaciens (strain C58,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AG3016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: GB:AE008689; PIDN:AAL44549.1; A;Experimental source: strain C58 (Dupont)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Authors: Yoo, H.; Tao,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Accession: AG3016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C; Species: Agrobacterium tumefaciens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Residues: 1-400 <KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Date: 11-Jan-2002 #sequence_revision 11-Jan-2002 #text_change 01-Feb-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167 IVALNSGSVLVDGLQLLQN------PAVCQE-----FVNSVF
                                                                                                                                                                                                                                                          129
                                                                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                                                                                               74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65 YSVIIPQGSWNSCVAECAVNTIKSDLEIFGRL-----TPVGDGIKMHETVINQMPPQ 116
                                                                                                                                                                                                                                                                                                                                                                                                                                  20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          86 IKSDLEIFGRLTPVGDGIKMHETVINQMPPQ-----AAVILLTDGHNNLGMNPVEE- 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                HSMVRPELATNODRPMPAFKTIDDLNDIAGKRVLVRVDLNVPVADGKVTDATRIERVAPT 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ILELSSKGAKVILLAHFGRPKG-EPVAEMSLSQIVPTVEDVLDHAISFATDCIGAPAADA 130
                                                                                                                                                                                                                                                                                                                                             SLSQIVPTVEDVLDHAISFÄTDCIGAPAADAVAKWNDGDIL-----LLENTRFHKGEEKN 128
                                                                                                                                                                                                                                                                                                                                                                                                                                  VRVDLNV-----PVADGKVTDATRIERVAPTILELSSKGAKVILLAHFGRPKG-EPVAEM 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----AAVILITDGHNNLGMNPVEE--VKSIYQTNPNVCFHVVSFADDAEGKAIIDQ 166
                                                                                                                                                                                                                                                                                                  -PAVCOE-----FVNSVF 197
                                                                                                                                                                                                                                                          DPAFVEELAANGDIYVNDAF 148
                                                                                                                                                                                                                                                                                                                                                                                     -VKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSGSVLVDGLQLLQN------ 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
The sequence of nber: Z21190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       phosphoglycerate kinase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Y.; Biddle, P.; Jung, M.; Krespan, W.; Perry, M.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8.7%; Score 97.5; DB 28.6%; Pred. No. 0.86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LLENTRFHKGEEKNDPAFVEELAANGDIYVNDAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 99; DB 2
Pred. No. 0.69;
                    December 1997
legans cosmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                      29-Oct-1999 #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Engineer Agrobacterium tumefaciens C58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       D.; Chen, L.; Wood, G.E.; Chen, D.; Kutyavin, T.; Levy, R.; Li,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       47;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PID:g17742163; GSPDB:GN00187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42;
                                                                                                           21-Jan-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gordon-Kamm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7;
```

, Woo, McClel

A; Reference number: A; Accession: T32550

A;Status: preliminary; translated from GB/EMBL/DDBJ

```
ঠ
                                                                                                                     밁
                                                                                                                                                            Ś
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Molecut: 1,615 <KUR>
A;Residues: 1-615 <KUR>
A;Cross-references: GB:BA000019; PIDN:BAB73481.1;
A;Cross-references: Strain PCC 7120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Kaneko, T.; Nakamura, Y.; Wolk, C.P.; Kuritz, T.; Sasamoto, S.; Watanabe, A.; Iriguch: Nakazaki, N.; Shimpo, S.; Sugimoto, M.; Takazawa, M.; Yamada, M.; Yasuda, M.; Tabata, 9DNA Res. 8, 205-213, 2001
A;Title: Complete Genomic Sequence of the Filamentous Nitrogen-fixing Cyanobacterium An: A;Reference number: AB1807; MUID:21595285; PMID:11759840
A;Accession: AH2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C;Species: Nostoc sp. strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7120 C;Date: Nostoc sp. strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7120 C;Date: 14-Dec-2001 #sequence_revision 14-Dec-2001 #text_change 30-Jun-2002 C;Accession: AH2028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Residues: 1-2848 <JOH>
A;Residues: 1-2848 <JOH>
A;Cross-references: EMBL:AF036702; PIDN:AAB88374.1; GSPDB:GN00022;
A;Experimental source: strain Bristol N2; clone F33D4
                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Status: preliminary A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           hypothetical protein all1782 [imported] -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;Map position: 4
;Introns: 48/2; 117/3; 167/3; 263/3; 316/3; 362/1; 378/2; 396/1; 436/3; 509/3; 658/3;
1; 2324/3; 2430/1; 2492/3; 2597/1; 2823/3
;Superfamily: inositol-trisphosphate receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gene: CESP:F33D4.2a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1912
                                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                               59
                                                                                                                                                                                                                                                                                                          29
                                                                                                                                                                                                                                                                                                                                                                                                                         Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                 --AVILLTDGHNNLGMN--PVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSG 173
                                                                                                                                                                                                                                                       LYTFAPYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDG-IKWHETVINQMPPQA 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AEIPES-PRRNLNLSLVIDRSGSMAGAALHHALK-----AAESV--VDQLEPKDILSVV 79
                                                                                                                                                                                                                                                                                                                                                   AEVTASCTKRVESYNYLVDYSGSM--MMKHVAVREPKIELAKEAILKINAAMPKMSYQGG 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ---LDTVCGSTKGSLGVFGEIGEHNFSLITQTLATLTEFCQGP--CHENONTMAMQE 2122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KAIIDQIVALNSGSVLVDG-----LQLLQNPAVCQEFVNSVFCQE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NDKVQHSFYMRMKQKDIHEPFFKAILTRIQTAQNRLKSDMMSCSDSKPKVSSTVLTPLID 1971
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NYLVDYSGSMMMKHVAVREP-----KIELA----KEAILKINAAMPKMS------
                                                                                                                   INRVLLLTDGHANMGIQDPKILTATSTQKAEEGITTTTLGFAQGFNEDLLIGMARAANGN 194
                                                                                                                                                                                                               VYDDAVDTVVPPQPVTDKPALKKSIRQVRA-----GGITNLSGGWLKGCEYVKHQLDPQK 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STDALPPEVALVEPILRVLQLLCENHNSLLQNFLR---KQSDRTNHNLVSETLSF----- 2070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AGDTGFNGALFE-----VPQQVRHPSISE--MSQLSNDLTHSIPDLAPYQD----EEK 2018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----YQGGLYTFAPYSVIIPQGSWNSCVAECAVNTIKSDL-EIFGRLTPVGDGIKMHET 108
                                                                          -----SVLVDGLQLL--QNPAVCQEFVNSV 196
                                                                                                                                                                                                                                                                                                                                                                                                   Similarity 23.3
51; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                      8.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8.4%;
                                                                                                                                                                                                                                                                                                                                                                                                 Score 92.5; DE Pred. No. 4.1; 41; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 93.5;
Pred. No. 24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Nostoc sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB
                                                                                                                                                                                                                                                                                                                                                                                                   90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72;
                                                                                                                                                                                                                                                                                                                                                                                                                                            ۷,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID:g17130872; GSPDB:GN00179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (strain PCC 7120)
                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 2848;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                 37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CESP:F33D4
                                                                                                                                                                                                                                                                                                                                                                                                 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12;
                          A;Gene: GDB:ITIH3
A;Cross-references:
```

```
A;Residues: 30-49 <ENG1>
R;Enghild, J.J.; Salvesen
J. Biol. Chem
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R;Diarra-Mehrpour, M.; Bourguignon, J.; Sarafan, N.; Bost, F.; Sesbouee, R.; Biochim. Biophys. Acta 1219, 551-554, 1994
A;Title: Tandem orientation of the inter-alpha-trypsin inhibitor heavy chain A;Reference number: $50132; MUID:95002176; PMID:7522574
A;Accession: $50133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           inter-alpha-trypsin inhibitor heavy chain 3 precursor - human
N;Alternate names: H(3; inter-alpha-trypsin inhibitor chain H3; pre-alpha-inhibitor
C;Species: Homo sapiens (man)
C;Date: 03-May-1994 #sequence revision 20-Feb-1995 #text change 04-Feb-2000
C;Accession: S30350; S34123; S02141; D34245; A39079; S50T33; B53642; A59167
C;Bccession: J; Diarra-Mehrpour, M.; Thiberville, L.; Bost, F.; Sesbouee, R.; Mar
                                                                                                                                                                A; Molecule type: protein
A; Residues: 30-34, XY < WIS>
R; Jessen, T.E.; Faarvang, K.L.;
FEBS Lett. 230, 195-200, 1988
                                                                                                                                                                                                                                                                                                                                R;Wisniewski, H.G.; Burgess, W.H.; Oppenheim, J.D.; Vilcek, Biochemistry 33, 7423-7429, 1994
A;Title: TSG-6, an arthritis-associated hyaluronan binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Enghild, J.J.; Salvesen, G.; Hefta, S.A.; Thogersen, I.B.; Rutherfurd, J. Biol. Chem. 266, 747-751, 1991
A;Title: Chondroitin 4-sulfate covalently cross-links the chains of the lA;Reference number: A39079; MUID:91093267; PMID:1898736
A;Accession: A39079
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R;Enghild, J.J.; Thogersen, I.B.; Pizzo, S.V.; Salvesen, G. J. Biol. Chem. 264, 15975-15981, 1989
A;Title: Analysis of inter-alpha-trypsin inhibitor and a novel A;Reference number: A92736; MUID:89380192; PMID:2476436
A;Accession: D34245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: mRNA
A; Residues: 1-310, 'K', 312-343, 'R', 345-885 <BOUZ>
A; CROSS-references: EMBL:X67055; NID:g288562; PIDN:CAA47439.1;
R; Diarra-Mehrpour, M.; Bourguignon, J.; Sesbouee, R.; Mattei, M.; Biochem. 179, 147-154, 1989
                               A;Molecule type: protein
A;Residues: 30-32,'GEKEQAVDT'
                                                                                     A; Accession: A59167
                                                                                                            A; Reference number: S02431;
                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: DNA
A;Residues: 1-27 <DIA2>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Molecule type: protein
A;Residues: 631-647 <ENG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Title: Human plasma inter-alpha-trypsin inhibitor is A; Reference number: S02141; MUID:89137072; PMID:2465147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 submitted to the EMBL Data Library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R;Bourguignon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eur. J. Biochem. 212, 771-776, 1993

A;Title: Human pre-alpha-trypsin inhibitor-precursor heavy chain cDNA and deduced

A;Reference number: S30350; MUID:93215656; PMID:7681778
                                                                                                                                                                                                                                                                                                      A; Reference number: A53642; MUID: 94271799;
                                                                                                                                                                                                                                                                                                                                                                                                                   A; Cross-references: EMBL: X75318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Accession: S02141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Accession: S34123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Reference number: S34123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Cross-references: EMBL:X67055; NID:g288562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Molecule type: mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Residues: 1-885 <BOU1>
                                                                                                            ;Title: Carbohydrate as covalent crosslink;Reference number: S02431; MUID:88167187; F
;Comment: As pre-alpha-inhibitor, (Comment: As pre-alpha-inhibitor, (
                                                                                                                                                                                                                                                                                  Accession: B53642;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Status: not compared with conceptual translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S30350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <ENG2>
                                                                                                                                                                                            Ploug,
     this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   June 1992
  protein
                                                                                                               in human inter-alpha-trypsin inhibitor: PMID:2450785
                                                                                                                                                                                                                                                                                                         PMID:7516184
     18
  covalently cross-linked
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             encoded
                                                                                                                                                                                                                                                                                                                                      protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID: 935465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                M.G.; Passage,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          trypsin inhibitor,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             γ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PID:g288563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          four genes
                                                                                                                                                                                                                                                                                                                                        forms
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   :
:
  γď
                                                                                                                                                                                                                                                                                                                                        stable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Muschio-Bo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pizzo,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
     chondroit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                plood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Salier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Martin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             amino
                                                                                                                                                                                                                                                                                                                                        Comp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S.V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      H3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                hea
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ű
```

GDB:120109; OMIM:146650

```
۲<sup>2</sup>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Experimental source: strain 9a5c

R;Simpson, A,J.G.; Reinach, F.C.; Arruda, P.; Abreu, F.A.; Acencio, M.; Alvarenga, R.; A
Briones, M.R.S.; Bueno, M.R.P.; Camargo, A.A.; Camargo, L.E.A.; Carraro, D.M.; Carrer, H
Briones, M.R.S.; Bueno, M.R.P.; Camargo, A.A.; Camargo, L.E.A.; Carraro, D.M.; Carrer, H
Briones, Bueno, M.R.P.; Camargo, A.A.; Facincani, A.P.; Ferreira, A.J.S.

submitted to GenBank, June 2000

A;Authors: Ferreira, V.C.A.; Ferro, J.A.; Fraga, J.S.; Franca, S.C.; Franco, M.C.; Frohm
J.D.; Junqueira, M.L.; Kemper, E.L.; Kitajima, J.P.; Krieger, J.E.; Kuramae, E.E.; Laigr
Chado, M.A.; Madeira, M.B.N.; Madeira, H.M.F.; Marino, C.L.; Marques, M.V.; Martins, E.
A;Authors: Martins, E.M.F.; Matsukuma, A.Y.; Menck, C.F.M.; Miracca, E.C.; Miyaki, C.Y.;
F.G.; Nunes, L.R.; Oliveira, M.A.; de Oliveira, M.C.; de Oliveira, R.C.; Palmieri, D.A.
Rodrigues, V.; Rosa, A.J. de M.; de Rosa Jr., V.E.; de Sa, R.G.; Santelli, R.V.; Sawasak
A;Authors: da Silva, A.C.R.; da Silva, F.R.; da Silva, A.M.; Silva Jr., W.A.; da Silva,
A;Authors: da Silva, A.C.R.; da Silva, F.R.; da Silva, A.M.; Silva Jr., W.A.; da Silva;
M.; Tsuhako, M.H.; Vallada, H.; Van Sluys, M.A.; Verjovski-Aimeida, S.; Vettore, A.L.;
A;Reference number: A59328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         conjugal transfer protein XFa0015 [imported] - Xylella fastidiosa (strain 9a5c) C;Species: Xylella fastidiosa (C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 02-Sep-2000 C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 02-Sep-2000 C;Accession: G82862 R;anonymous, The Xylella fastidiosa Consortium of the Organization for Nucleotide Sequen Rsite 406, 151-157, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Note: plasmid pXF5.1
C; Superfamily: tumor-:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nature 406, 151-157, 2000

A;Title: The genome sequence of the plant pathogen Xylella fastidiosa. A;Reference number: A82515; MUID:20365717; PMID:10910347

A;Note: for a complete list of authors see reference number A59328 bel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                           밁
                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 1-347 <SIM>
A;Residues: 1-347 <SIM>
A;Cross-references: GB:AE003851; NID:g9112238; PIDN:AAF85584.1; GSPDB:GN00130; XFSC:XFa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Gene: XFa0015
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: G82862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;Superfamily: inter-alpha-trypsin inhibitor complex component II
;Keywords: chondroitin sulfate proteoglycan; glycoprotein; heterodimer; proteinase
;Keywords: chondroitin sulfate proteoglycan; glycoprotein;
heterodimer; proteinase
;1-19/Domain: signal sequence #status predicted <SIG>
;20-29/Domain: propeptide #status predicted <PRO>
;30-647/Product: inter-alpha-trypsin inhibitor heavy chain 3 #status experimental 
;30-647/Product: carboxyl-terminal propeptide #status predicted <CTP>
;817,576/Binding site: carbohydrate (Asn) (covalent) #status predicted
;817,576/Binding site: chondroitin sulfate ester carboxyl end (Asp) (in mature form) #
                                                                                                                                                                                                                                                                                                                                                                                                                                  ;Superfamily: tumor-inducing plasmid pTiC58 virB11 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122 LTDGHNNLGMNPVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16 YLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75
                                                                                                                                                                                               18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local
                                           78 VAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINQMPPQAAVILLTDGHNNLGMNPVEEV 137
                                                                                                                                                                                                                                                                                                                  Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EHLVQATPENLQEAKTFVKSMEDKG-MTNINDGLLRGISMLNKAREEHRIPERSTSIVIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SCVAECA----- VNTIKSDLEIFGRLTPVGDGIKMHETVIN----- QMPPQAA--VIL 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FVIDISGSMAGR-----KLEQTKEALLRILEDMQEEDY---
                                                                                                                       VDASGTLHPYEVEL----LALKKSNRIK---EFLKLAMQHGL----TLVIVGKTGSGKTT 192
                                                                                                                                                                                               VDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNSC 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LTDGDANVGESRPEKIQ 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1 Similarity
34; Conserv
                                                                                                                                                                                                                                                                          Similarity 22.1
47; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.2%;
                                                                                                                                                                                                                                                                      8.1%; Score 90.5; Di
22.1%; Pred. No. 2.9;
tive 35; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; Score 92; DB 2; Pred. No. 7.2; 30; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         reference number A59328 below
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                      ВB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 885;
                                                                                                                                                                                                                                                                                                                                                      Length 347;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <MAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #sta
```

```
A; Nedwork France: DNA
A;Molecule type: DNA
A;Residues: 1-318 <HEI>
A;Cross-references: GB:AE004357; GB:AE003853; NID:g9657547; PIDN:AAF96085.1; GSPDB:GN00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Heidelberg, J.F.; Eisen, J.A.; Nelson, W.C.; Clayton, R.A.; chardson, D.; Ermolaeva, M.D.; Vamathevan, J.; Bass, S.; Qin, l, R.R.; Mekalanos, J.J.; Venter, J.C.; Fraser, C.M. Nature 406, 477-483, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            conserved hypothetical protein VCA0172 [imported] - Vibrio cholerae (strain N16961 sero) C;Species: Vibrio cholerae (c;Species: Vibrio cholerae (c;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 02-Feb-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Title: DNA Sequence of both chromosomes of the cholera A;Reference number: A82035; MUID:20406833; PMID:10952301 A;Accession: B82493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
A;Cross-references:
A;Map position: 4R
C;Superfamily: Sacch
                                                                                                                                                                                                                                        R;Oliver, K.; Harris, D. submitted to the EMBL Data Library, A;Reference number: S52697
                                                                                                                                                                                                                                                                                                                                                                                  hypothetical protein YDR202c - yeast (Saccharomyces N;Alternate names: hypothetical protein YD9346.12c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Map position:
                                                                                                                                                                                                                                                                                                                                   C;Species: Saccharom
C;Date: 19-May-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Status: preliminary
                                                                                                                    A;Cross-references: EMBL:Z48784; NID:g755782; PID:g755794; GSPDB:GN00004; MIPS:YDR202c
A;Experimental source: strain AB972
                                                                                                                                                                     A;Molecule type: DNA
A;Residues: 1-351 <OLI>
                                                                                                                                                                                                                                                                                                                    C;Accession: S52708
                                                                       A;Gene: SGD:RAV2; MIPS:YDR202c
                                                                                                C;Genetics:
                                                                                                                                                                                                                    Accession: S52708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          131 GLILFADHAYLQTFLTLDRQTVANQLNQTV---LKLIGTQTAIGEGIGLATKTFIDSDAP 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       58 GLYTFAPYSVI-IPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKM-HETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DGLQLLQNPAVCQEFVNSVFCQEQILVTEEVVV 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ASCLRMKPDRILLTEMRGDEAWEFVKAVGSGHPGISTAHAGGALEAFDQIVALIKDS--A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IGKSITNCIPTD---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EGKAIIDQIVALNSG 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QAAVILLTDGHNNLG-MNPVEEVKSIYQTNPNV------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QRVMILLSDGSNTAGVLDPLEAANIAKQYNTTIYTVGVGAGEMVVKDFLFSRKVNTAQDL 247
                                                                                                                                                                                                                                                                                                                                                                 Saccharomyces cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        36;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E82493
Saccharomyces cerevisiae hypothetical protein YDR202c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                        #sequence_revision 01-Sep-1995
                                                 SGD:S0002610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -ERLVTVED---VHEMFLNHHPNKVHLFYSRDGEGSLSINPKQAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.0%; Score 90; DB 26.7%; Pred. No. 2.9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -DAAYIKKRVFETVDIVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22; Mismatches
                                                                                                                                                                                                                                                                     March
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -EGKAI--IDQIVALNSGSVLV 177
                                                                                                                                                                                                                                                                                                                                        #text_change 19-Apr-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pathogen Vibrio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --CFHVVSFADDA 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gwinn, M.L.;
H.; Dragoi, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cholerae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Dodson, R.J
I.; Sellers,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R.J
```

Score

90; DB

```
hypothetical protein XF2779 [imported] - Xylella fastidiosa (strain 9a5c) C;Species: Xylella fastidiosa C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 20-Aug-20
                                                                RESULT
G82516
                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R;Hawkins, A.R.; Gurr, S.J.; Montague, P.; Kinghorn, J.R. Mol. Gen. Genet. 218, 105-111, 1989
A;Title: Nucleotide sequence and regulation of expression of A;Reference number: S04904; MUID:89384423; PMID:2550758
A;Accession: S04904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         glutamate dehydrogenase (NADP) (EC 1.4.1.4) - Emericella nidulans N;Alternate names: glutamic dehydrogenase; NADP-specific glutamate dehydrog C;Species: Emericella nidulans, Aspergillus nidulans C;Date: 28-Peb-1990 #sequence_revision 23-Mar-1995 #text_change 03-Jun-2002
                                                                                                                                                 밁
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Molecule type: DNA
A; Residues: 1-459 <HAM>
A; Residues: 1-459 <HAM>
A; COSS-references: EMBL: X16121; NID: g2347; PIDN: CAA34252.1;
A; Note: the authors translated the codon CTT for residue 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ર્શ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;114/Binding site: substrate (Lys) #status
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Superfamily: glutamate dehydrogenase (NAD(P)+);Keywords: NADP; oxidoreductase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;Introns: 16/1; 108/1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Accession: S04904
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       232
                                                                                                                                                                                          182 LLQNPA 187
                                                                                                                                                                                                                                                                                                                                                                                                    250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                                                                                                                                                                                                                                                                                                                          17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ocal Similarity
                                                                                                                                             MAQNSA
                                                                                                                                                                                                                                 F-EAHRN--ANPGDAIWY-
                                                                                                                                                                                                                                                                                                                                                                                               LSDSKGSLIVKDESASFTPEEIALIADLKVARKQLSELATSSAFAGKFTYIPDARPWTNI 309
                                                                                                                                                                                                                                                                                                                                                                                                                                      LVDYSGSMMMKHVAVREPKIELAKEAILKIN----AAMPKMSYQGGLYTFAP-----
                                                                                                                                                                                                                                                                     LTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSGSVLVDGLQ 181
                                                                                                                                                                                                                                                                                                              PGKFEVALPSATQNEVSGEEAEHLIKSGVRY-----IAEGSNMGCT-----QAAIDI 356
                                                                                                                                                                                                                                                                                                                                            ---YSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKWHETVINQMPPQAAVIL 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ILVTE-EVVVLRGVNF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IDSKTGRSFCDQIRNQVTNERNKTLSKILSENGVQVQDSTLLNH-----IISSFQSEA 284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DGHNNLGMNPVEEVKSIYQTNPNVC---FHVVSF-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YIVDF-----HIVVRFPQFQRGKQVMFRMNTGLNFLLIQ-----FSKIMTH---- 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ITLPEAQELLRRGVTF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDAEGKAIIDQI------VALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQ 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEDNNFAM-----KEMFODCYSVCESTAHILGLELTLCRNELCIELRNLIKVTKKPWCE 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SCVAECAVNTIKSDLEIFGRLTPVGD-----GIKM----HETVINQMPPQAAVILLT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   45,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
52; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -LKNILEILNQLQVATDVSEFVSKFGVAMELLNHSLILLQNPPRD---LVF 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20.3%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 90; DB 1; Length 459; Pred. No. 4.6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No. 3.3; 
is, Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  69;
#text_change 20-Aug-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                               -AANAGGVAVSGLE 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the Aspergillus nidulans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                        64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
```

```
R.Simpson, A.J.G.; Reinach, F.C.; Arruda, P.; Abreu, F.A.; Acencio, M.; Alvarenga, R.; Briones, M.R.S.; Bueno, M.R.P.; Camargo, A.A.; Camargo, L.E.A.; Carraro, D.M.; Carrer, as.Neto, E.; Docena, C.; El-Dorry, H.; Facincani, A.P.; Ferreira, A.J.S. submitted to GenBank, June 2000

A; Authors: Ferreira, V.C.A.; Ferro, J.A.; Fraga, J.S.; Franca, S.C.; Franco, M.C.; Froh J.D.; Junqueira, M.L.; Kemper, E.L.; Kitajima, J.P.; Krieger, J.E.; Kuramae, E.E.; Laig chado, M.A.; Madeira, A.M.B.N.; Madeira, H.M.F.; Marino, C.L.; Marques, M.V.; Martins, A.A., L.; Kemper, E.L.; Mines, C.F., M.; Miracca, E.C.; Miyaki, C.Y., F.G.; Nunes, L.R.; Oliveira, M.A.; de Oliveira, M.C.; de Oliveira, R.C.; Palmieri, D. Rodriques, V.; Rosa, A.J. de M.; de Rosa Tr., V.E.; de Sa, R.G.; Santelli, R.V.; Sawasa A; Authors: da Silva, A.C.; de N.; de Rosa Tr., V.E.; de Sa, R.G.; Santelli, R.V.; Sawasa A; Tsuhako, M.H.; Vallada, H.; Van Sluys, M.A.; Verjovski-Almeida, S.; Vettore, A.L.; A.Reference number: A59328
A;Molecule type: DNA
A;Residues: 1-1091 <GLA>
A;Cross-references: GB:NC_003210; PIDN:CAD00524.1; PID:g16411934; GSPDB:GN00177
                                                                                                                                                           Science 294, 849-852, 2001
A; Authors: Kreft, J.; Kuhn, M.; Kunst, F.; Kurapkat, G.; Madueno, ok, C.; Schlueter, T.; Simoes, N.; Tierrez, A.; Vazquez-Boland, J.
A; Title: Comparative genomics of Listeria species.
A; Reference number: AB1077; MUID:21537279; PMID:11679669
                                                                                                                                                                                                                                                                                                                                   C;Accession: AF1380
R;Glaser, P.; Frangeul, L.; Buchrieser, C.; Amend,
.; Dominguez-Bernal, G.; Duchaud, E.; Durand, L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   glycosidase homolog lmo2446 [imported] - Listeria monocytogenes (strain C;Species: Listeria monocytogenes)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Note: for a complete A;Accession: G82516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Accession: G82516
R;anonymous, The Xylella fastidiosa Consortium of the Organization for Nucleotide
Nature 406, 151-157, 2000
A;Title: The genome sequence of the plant pathogen Xylella fastidiosa.
A;Reference number: A82515; MUID:20365717; PMID:10910347
                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Species: Listeria
C;Date: 27-Nov-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: DNA
A;Residues: 1-903 <SIM>
A;Cross-references: GB:
                                                                                                       A;Status: preliminary
                                                                                                                                         A; Accession: AF1380
                                                                                                                                                                                                                                                                                                                 D.; Jones, L.M.; Karst,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Experimental source: strain 9a5c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CQEQILVTEEVVVLRGVN 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YGILEAYPIPMEESEHEIFGNELPPKTLVLTFDDGPHRVYTNEIKEILQHYAV-PAVFFE 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QRIHEDIDALNQIERNYNQEITRLSIPFDRNRGIFIKREKWDDYVAHLRRSYTRKMILHD 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALLASGAPSRFDTLTVILDYIESSPDLYDADRLAFREALNDL--DARINHDSALPAIKLR 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AEVTASCTKRVESYNYLVDYSGSMM----MKHVAVREPKIELAKEAILKINAAMPKMSYQ 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VGRNIGRFDRAGKPQLGPLSKITRELIEQGYÁVANHSMTHDLLSKLSGNÁLRKEVINA-- 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FGRLT--PVGDGIKMHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFH 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                            #sequence_revision 27-Nov-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                monocytogenes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DIILRAVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GB:AE004083; GB:AE003849; NID:g9108022; PIDN:AAF85564.1; GSPDB:GN00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             list of authors see reference number A59328 below
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8.0%; Score 90; DB
20.9%; Pred. No. 11;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----AIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVF 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --TFAPY----SVIIPQGSWNSCVAECAVN-TIKSDLEI 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   45; Mismatches
                                                                                                                                                                                                                                                                                                                                         L.; Dussurget,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2; Length 903
                                                                                                                                                                                                                                                                                                                                                                           Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                            #text_change
                                                                                                                                                                                                                                                                                                                                         Baquero, F
urget, O.;
                                                                                                                                                                                                                                                                                                                                      .; Entian,
                                                                                                                                                                                                                                                                                                                                                                                                                                     27-Nov-2001
                                                                                                                                                                                                                        .
P ::
                                                                                                                                                                                                                                                                                                                                                                        Berche, P.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                        Maitournam, A.; M
Voss, H.; Wehland
                                                                                                                                                                                                                                                                                                                                            X.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
                                                                                                                                                                                                                                                                                                                                            Bloecke
Fsihi, H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Seque
```

strain

```
glycosidase homolog lin2540 [imported] - Listeria innocua (strain Clip11262) C;Species: Listeria innocua (c;Date: 27-Nov-2001 #sequence_revision 27-Nov-2001 #text_change 27-Nov-2001 C;Accession: AG1749 R;Glaser, P.; Frangeul, L.; Buchrieser, C.; Amend, A.; Baquero, F.; Berche, F.; Dominguez-Bernal, G.; Duchaud, E.; Durand, L.; Dussurget, O.; Entian, K.D.; Jones, L.M.; Karst, U. Science 294, 849-852, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        inter-alpha-inhibitor H4P heavy chain - rat C;Species: Rattus norvegicus (Norway rat) C;Date: 05-Feb-1999 #sequence_revision 05-Feb-1999 #text_change 21-Jul-2000 C;Accession: JC5953 R;Soury, E.; Olivier, E.; Daveau, M.; Hiron, M.; Claeyssens, S.; Risler, J.I Blochem. Biophys. Res. Commun. 243, 522-530, 1998 A;Title: The H4P heavy chain of inter-alpha-inhibitor family largely differ: A;Reference number: JC5953; MUID:98153798; PMID:9480842 A;Accession: JC5953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
JC5953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Experimental source: C;Genetics: A;Gene: lmo2446
                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                             DЬ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Molecule type: mRNA
A;Residues: 1-932 <SOU>
A;Cross references: GB:Y11283; NID:g2292987; PIDN:CAA72155.1; PID:g2292988
C;Superfamily: inter-alpha-trypsin inhibitor complex component II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                               276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 743
                                                                                                                                                                                                                                             379
                                                                                                                                                                                                                                                                                119
                                                                                                                                                                                                                                                                                                                      320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             953 KDAKQAIVLNGVNHA 967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                   15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            72
                                                                                                                                                                                                                                                                                                                                                       73
                                                                                                                                                                                                                                                                                                                                                                                                                21 SGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQ-GGLYTFAPY-----SVIIPQ 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        тосат
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LVTEEVVVLRGVNFA 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Y-QLGQNVGNDLKSY----DNLTFRVYPSGDSEYSFYDDVNGGEMRDISVSEDFANEKVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NGKSMMRQMAMDYPE------DVNARDLDEQYMFGDDLLVAPIVQEGQTEKEVYLPE 793
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HNNLGMNPVEEVKSIYQTNPNVCFHV-----VSFADDAEG-------KAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GEW--------VDIWNGGVHPGGETISYYADV-DTLPVFAKAGATIPMNMTDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSWNSCVAECAVNTIKSDLEIF-GRLTPVGDGIKMHETVINQMP--PQAAVIL---LTDG 125
                                                                                                                                                                                                                                                                              VILLIDGHNNLGMNPVEEVKSIYQTNPNV 147
                                                                                                                                                                                                                                                                                                                    QWEQLLVQATEENLNRAVDYASKI-PAQGGTNINKAVLSAVELLDKSNQAELLPSKSVSL 378
                                                                                                                                                                                                                                                                                                                                                                                             FVIDKSGSMAGK-----KIQQTREALIKI---LKDLSTQD-----QFNIIVFSGEAN 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VDLPAMADETTMQVFSTEPTSVTIDGADVAKADTLDAFNEATTGYYYDTVQNLTYVKAAA 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ID-----QIVALNSGSVLVDGLQLLQ-----NPAVCQEFVNSV----FCQEQI
                                                                                                                                                                                                                                             IILLTDGEPTVG-
                                                                                                                                                                                                                                                                                                                                                       SWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVI------NQ---MPPQAA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 22.1
13; Conservative
Karst, C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7.8%; Score 87.5; I
22.1%; Pred. No. 19;
7ative 31; Mismatches
                                                                                                                                                                                                                                             ----ETNPKI 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 90;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2; Length 1091;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               largely differs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S.; Risler, J.L.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                       118
                                                                                                                                                                                                                                                                                                                                                                                                                                  72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ij
                                                 ; Bloecker
Fsihi, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Salier,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   str
```

```
A;Authors: Kreft, J.; Kuhn, M.; Kunst, F.; Kurapkat, G.; Madueno, E.; Maitournam, A.; Mok, C.; Schlueter, T.; Simoes, N.; Tierrez, A.; Vazquez-Boland, J.A.; Voss, H.; Wehland, Title: Comparative genomics of Listeria species.
A;Reference number: AB1077; MUID:21537279; PMID:11679669
A;Accession: AG1749
                                                                                밁
                                                                                                                     Ś
                                                                                                                                                                   밁
                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                  멼
                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: GB:AL592022; PIDN:CAC97767.1; A;Experimental source: strain Clip11262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-1090 <GLA>
밁
                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Gene: lin2540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local (
                                                                                                                                                                   838
                                                                                  893
953
                                         203
                                                                                                                                                                                                        126 HNNLGMNPVEEVKSIYQTNPNVCFHV-----VSFADDAEGKAIID------ 165
                                                                                                                                                                                                                                                    794
                                                                                                                                                                                                                                                                                                                                  743 NGKSMMRQMAMDYPE-----DINTRNLDEQYMFGDDLLVAPIVQEGQTEKEVYLPE 793
                                                                                                                                                                                                                                                                                                                                                                                                                 y Match 7.7%;
Local Similarity 21.6%;
hes 55; Conservative 3
                                                                                                                                                                                                                                                                                           72
                                                                                                                                                                                                                                                                                                                                                                            21
                                                                                                                                                                                                                                                                                                                                                                            SGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQ-GGLYTFAPY-----SVIIPQ 71
  TDTTQAIVLNGVNHA
                                                                                                                                                                 Y-QLGQNVGNDLKAY----DNLTFRVYPSGNSEYSFYDDVNGGEMRDISVSEDFANEKVT 892
                                                                                                                                                                                                                                                                                           GSWNSCVAECAVNTIKSDLEIF-GRLTPVGDGIKMHETVINQMP--PQAAVIL---LTDG 125
                                         LVTEEVVVLRGVNFA 217
                                                                                VNLPAMADETTMQVFSTEPTSVTVAGAEVAKADTLDAFNEATSAYYYDTVQNLTYIKTAA 952
                                                                                                                                                                                                                                                 GEW-----IDIWNGGIHPGGETISYYADV-DTLPVFAKAGAIIPMNMTDG 837
                                                                                                                       QIVALNSGSVLVDGLQLLQ-----VPAVCQEFVNSV----FCQEQI 202
                                                                                                                                                                                                                                                                                                                                                                                                                     ; Score 86; DB
; Pred. No. 31;
36; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                     76;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PID:g16415062; GSPDB:GN00178
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 1090
                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                       88;
                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                         14;
```

Search completed: April Job time: 48 secs 9, 2003, 14:33:04

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                               Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                       Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being pu and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88
                                                                                                                                                                                                                                                                                                                            Score
          seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein search, using sw model
                                                                                                                                                                                                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        April 9, 2003, 14:32:23; Search time 35 Seconds (without alignments) 380.790 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10:
11:
12:
13:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 AEVTASCTKRVESYNYLVDY......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2
1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             248812 seqs, 61136040 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Maximum Match 100%
Listing first 45 su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Published
                                                                                                                                                                                                                                                                                                                                                                                                                                                              /cgn2_6/ptodata/2/pubpaa/US08_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/PCT_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/US06_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/US06_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US07_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/US07_NEW_PUB.COMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US07_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US08_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US08_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
/cgn2_6/ptodata/2/pubpaa/US09_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*
2: /cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*
3: /cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*
/cgn2_6/ptodata/2/pubpaa/US10_PUBCOMB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _Applications_AA:*
                                                                                                                                                                                                                                                                                                                            DΒ
                  US-09-989-293A-379
US-09-989-735-379
US-09-989-735-379
US-09-990-444-379
US-09-990-436-379
US-09-991-181-379
US-09-991-181-379
US-09-991-887-379
US-09-991-887-379
US-09-997-653-379
US-09-997-653-379
US-10-174-590-258
US-10-175-737-258
                                                                                                                                                                                                                                            US-09-828-423-5
US-09-981-353-54
2 US-10-025-167-41
US-09-992-598-379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   summaries
                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 248812
Sequence 5, Appli
Sequence 41, Appl
Sequence 379, App
Sequence 379, App
Sequence 70, Appl
Sequence 379, App
Sequence 258, App
                                                                                                                                                                                                                                                                                                                       Description
                                                                                                                                                                                                                                                                                                                                                                                                                        printed,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 1
US-09-828-423-5
```

•	_	_		•	Ū	Ī	_	_		•	_	_		•	Ĭ	_	_	_	٠.	•	_	_		•	_
		۲	۳	۲	۲.	۲.	۳.		۲.	۳.	۲.	۲.	91.5	۲.			:		۲.			۲.	۲.	۲.	:
•			•		٠	٠	•	•	•	٠	٠	٠	8.2	•	٠	٠	٠	٠	•	•		٠	٠	٠	
-	$\mathbf{r}$	ш	$\mathbf{L}$	$\mathbf{r}$	$\vdash$	919	_	$\mathbf{L}$	$\vdash$	$\vdash$	$\vdash$	$\mathbf{r}$	919	_	$\vdash$	$\mathbf{r}$	$\mathbf{r}$	$\mathbf{r}$	$\vdash$	_	$\mathbf{r}$	$\mathbf{r}$	$\vdash$	₩	μ.
9	9	9	9	φ	9	ø	9	9	9	9	9	9	ø	9	ø	ø	9	9	9	9	9	9	9	9	9
US-10-176-985-258	-10-176-750-	-10-176-747-2	-10-176-492-	-10-176-488-	-10-175-743-2	-10-175-740-2	-10-175-739-	-88	-10-174-582-	-10-174-579-2	72-	-10-173-700-2	97-666-37	97-428-37	-09-990-562-37	9-990-438-37	0-557-	80-552-	US-10-176-913-258	57-	2	-10-175-752-25	-10-175-738-2	US-10-173-706-258	US-10-063-502-70
e 258,	equence 258,	e 258,	e 258,	e 258,	e 258,	e 258,	e 258,	e 258,	e 258,	e 258,	e 258,	e 258,	e 379,	٥	e 379,	e 379,	e 258,	e 258,	e 258,	e 258,	e 258,	e 258,	equence 258,	e 258,	•
App	Ąpp	Āpp	App	App	App	App	App	App	App	App	App	App	App	App	App	App	Āpp	App	App	App	App	App	App	App	Appl

## ALIGNMENTS

```
Sequence 5, Application US/09828423
Patent No. US2002099178A1

GENERAL INFORMATION:
APPLICANT: Hillman, Jennifer L.
GREGIEr, KARI J.

GREGIEr, KARI J.

Patterson, Chandra
TITLE OF INVENTION: GROWTH-ASSOCIATED TRYPSIN-TYPE
INHIBITOR HEAVY CHAIN PRECURSOR
NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
ADDRESSE: Incyte Pharmaceuticals, Inc.
STREET: 3174 Porter Drive
CITY: Palo Alto
STRATE: CA
COUNTRY: USA
ZIP: 94304
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: Word Perfect 6.1/MS-DOS 6.2
CURRENT APPLICATION NUMBER: US/09/828,423
FILING DATE: 05-Apr-2001
CLASSIFICATION NUMBER: 09/388,774
FILING DATE: CUNKNOWN-
APPLICATION NUMBER: 09/388,774
FILING DATE: CUNKNOWN-
ATTORNEY/AGENT INFORMATION:
NAME: Cerrone, Michael C
REGISTRATION NUMBER: 39,132
REFERENCE/DOCKET NUMBER: PF-0505 US
TELEPONE: 650-845-0555
TELEPAX: cUnknown-
ATTORNATION FOR SEQ ID NO: 5:
SEQUENCE CHARACTERISTICS:
LENGTH: 885 amino acids
TYPE: amino acid
```

STRANDEDNESS: single TOPOLOGY: linear

```
APPLICANT: Lasek, Amy W.
APPLICANT: Jones, David A.
APPLICANT: Jones, David A.
TITLE OF INVENTION: GENES EXPRESSED IN COLON
FILE REFERENCE: PA-0038 US
CURRENT APPLICATION NUMBER: US/09/981,353
CURRENT FILING DATE: 2001-10-11
NUMBER OF SEQ ID NOS: 194
SOFTWARE: PERL Program
SEQ ID NO 54
RESULT 3
US-10-025-167-41
; Sequence 41, Application US/10025167
; Patent No. US20020127593A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                 Ś
                                                                                                                                                                                    밁
                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; FEATURE:
; NAME/KEY: misc_feature
; OTHER INFORMATION: Incyte ID No. US20020160382A1 2771481CD1
US-09-981-353-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-981-353-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-828-423-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 54, Application US/09981353 Patent No. US20020160382A1
                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ENGTH: 917
                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   330 EHLVQATPENLQEARTFVKSMEDKG-MTNINDGLLRGISMLNKAREEHRIPERSTSIVIM 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       283 FVIDISGSMAGR-----KLEQTKEALLRILEDMKEEDY----LNFILFSGDV--STWK 329
                                                                                                                                                                                    402
                                                                                                                                                                                                                                                        346 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                         310 VLDKSGSMG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                          77
                                                                                                                                                                                                                                                                                                                                                         17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE DESCRIPTION: SEQ ID NO: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          IMMEDIATE SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LTDGDANVGESRPEKIQ 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LTDGHNNLGMNPVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SCVAECA----- VNTIKSDLEIFGRLTPVGDGIKMHETVIN----- QMPPQAA--VIL 121
                                                                                                                                                   ---DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                    QLDGSEVLLITDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                                                                                                                                       Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA--
                                                                                                                                                                                                                                                                                    CV-----DGIKWHETVINQMPP 115
                                                                                                                   YVSDEAQNNGLÍDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l Similarity 24.8
34; Conservative
                                                                                                                                                                                                                                                                                                                                                                                          46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CLONE: Gi288563
                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENEBANK
                                                                                                                                                                                                                                                                                                                                                                                                          8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.2%; Score 92; DB
24.8%; Pred. No. 0.49
tive 30; Mismatches
                                                                                                                                                                                                                                                                                                                        ----GKDRLNRMNQAAKHFLLQ-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EXPRESSED IN COLON CANCER
                                                                                                                                                                                                                                                                                                                                                                                          26;
                                                                                                                                                                                                                                                                                                                                                                                                          Score 91.5;
Pred. No. 0
                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 10; Length 885;
                                                                                                                                                                                                                                                                                                                                                                                                     DB
,.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45;
                                                                                                                                                                                                                                                                                                                                                                                          55;
                                                                                                                                                                                                                                                                                                                                                                                                                        9;
                                                                                                                                                                                                                                                                                                                                                                                                                          Length 917;
                                                                                                                                                                                                                                                                                                                        ----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                          75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                       155
                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7;
```

```
밁
                                                                                                    Ş
                                                                                                                                                                            Ş
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                               ; TOPOLOGY: linear; MOLECULE TYPE: No. US20020127693Ale; SEQUENCE DESCRIPTION: SEQ ID NO: 41: US-10-025-167-41
                            Ş
                                                                                                                                            밁
                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                        Matches 46;
                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX: <Unknown>
INFORMATION FOR SEQ ID NO: 41:
                                                                                                      116
                                  156
                                                                      402
                                                                                                                                            346 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                  310 VLDKSGSMG------GKDRLNRMNQAAKHFLLQ-
459 YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 09/049,698
FILING DATE: «Unknown»
APPLICATION NUMBER: 09/828,856
FILING DATE: 31-MAR-1997
ATTORNEY/AGENT INFORMATION:
NAME: Becker, Cheryl L.
REGISTRATION NUMBER: 35,441
REFERENCE/DOCKET NUMBER: 6068.US
                                                                                                                                                                                77 CV-----
                                                                                                                                                                                                                                                    17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE CHARACTERISTICS:
LENGTH: 917 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US/10/025,167
FILING DATE: 19-Dec-2001
CLASSIFICATION: «Unknown»
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
ADDRESSEE: Abbott Laboratories
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: BILLING-MEDEL, PATRICIA
COHEN, MAURICE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELECOMMUNICATION INFORMATION:
                              ---DDAEGKAIIDQIVALNSGS 174
                                                                    Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FASTSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET: 100 Abbott
CITY: Abbott Park
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 60064-3500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ဝှု
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TELEFAX: 847/938-2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEPHONE: 847/935-1729
                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  KLASS, MICHAEL R.
ROBERTS-RAPP, LISA
RUSSELL, JOHN C.
STROUDE, STEPHEN D.
INVENTION: REAGENTS AND METHODS FOR THE
USEFUL FOR DETECTING DISEASES OF THE GASTROINTESTINAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HAYDEN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COLPITTS, TRACEY L
FRIEDMAN, PAULA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             100 Abbott Park Road
                                                                                                                                                                                                                                                                                                         8.2%;
                                                                                                                                                                              -AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TRACEY L.
                                                                                                                                                                                                                                                                                      %; Score 91.5; D
%; Pred. No. 0.58
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6068.US.P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Þ
                                                                                                                                                                                                                                                                                                             . 58 ;
                                                                                                                                                                                                                                                                                                                            DB 12;
                                                                                                                                                                                                                                                                                                                            Length 917;
                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                    ----TVENGSWVG 345
                                                                                                                                                                                                                                                                                            75;
                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                            8
```

```
RESULT 4
US-09-992-598-379
                                              CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR APPLICATION NUMBER: 60/062250
PRIOR APPLICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/065186
PRIOR PILING DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/066770
PRIOR PILING DATE: 1997-11-24
PRIOR PILING DATE: 1998-02-25
PRIOR PRICING DATE: 1998-02-26
PRIOR PILING DATE: 1998-03-20
PRIOR PILING DATE: 1998-03-20
PRIOR PILING DATE: 1998-03-22
PRIOR PILING DATE: 1998-05-28
PRIOR PILING DATE: 1998-05-28
PRIOR PILING DATE: 1998-05-07
PRIOR PILING DATE: 1998-05-07
PRIOR PILING DATE: 1998-05-07
PRIOR PILING DATE: 1998-06-02
PRIOR APPLICATION NUMBER: 60/087607
PRIOR APPLICATION NUMBER: 60/088021
PRIOR APPLICATION NUMBER: 60/088021
PRIOR APPLICATION NUMBER: 60/088025
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PILING DATE: 1998-06-04
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PILING DATE: 1998-06-04
PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PILING DATE: 1998-06-04
PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PILING DATE: 1998-06-04
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PILING DATE: 1998-06-04
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Pan, James
APPLICANT: Paoni, Nici
APPLICANT: Roy, Margi
APPLICANT: Stewart,
APPLICANT: Tunnas, Da
APPLICANT: Watanabe,
APPLICANT: Williams,
APPLICANT: Williams,
APPLICANT: Wood, Will
APPLICANT: Zhang, Ze
TITLE OF INVENTION: S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 379, Application US/09992598 Patent No. US20020160384A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: P2730P1C20
CURRENT APPLICATION NUMBER: US/09/992,598
CURRENT FILING DATE: 2001-11-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                E OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic E OF INVENTION: Acids Encoding the Same
APPLICATION NUMBER: 60/088029
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gerber, Hanspeter
Gerritsen, Mary E.
Goddard, Audrey
Godowski, Paul J.
Grimaldi, J. Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Williams, P. Mickey Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Watanabe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gurney, Austin L
Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Margaret Ann
art, Timothy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ×
```

PRIOR PILING DATE: 1998-06-04
PRIOR APPLICATION NUMBER: 60/088033
PRIOR FILING DATE: 1998-06-04
PRIOR APPLICATION NUMBER: 60/088126
PRIOR APPLICATION NUMBER: 60/088167
PRIOR APPLICATION NUMBER: 60/088167
PRIOR APPLICATION NUMBER: 60/088212
PRIOR APPLICATION NUMBER: 60/088217
PRIOR APPLICATION NUMBER: 60/088217
PRIOR APPLICATION NUMBER: 60/088734
PRIOR APPLICATION NUMBER: 60/088810
PRIOR APPLICATION NUMBER: 60/088810
PRIOR APPLICATION NUMBER: 60/088810
PRIOR APPLICATION NUMBER: 60/088810
PRIOR APPLICATION NUMBER: 60/088826
PRIOR APPLICATION NUMBER: 60/088926
PRIOR APPLICATION NUMBER: 60/089926
PRIOR APPLICATION NUMBER: 60/089927
PRIOR APPLICATION NUMBER: 60/089927
PRIOR APPLICATION NUMBER: 60/089929
PRIOR

```
Ş
 밁
                     Ś
                                               뮹
                                                                                               밁
                                                                                                                     S
                                                                                                                                               Query Ma
Best Loc
Matches
                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                         PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                      PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
 402
                        116
                                                346
                                                                                               310
                                                                                                                        17
                                                                       77
                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/090695
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090696
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090678
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090690
                                                                                                                                                                                               APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                           FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-00
APPLICATION NUMBER:
FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-00
APPLICATION NUMBER:
                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/091633
                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/091519 FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090862 FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING
                                             LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                      Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                        CV----
                                                                                                 VLDKSGSMG-
QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LING DATE:
                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DATE:
                                                                                                                                               8.2%;
llarity 22.8%;
Conservative 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER: 60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER: 60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-2
                                                                                                                                                                                                                                                                                               1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                               1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-24
                                                                                                                                                                                                                                                 1998-07-07
                                                                                               ----GKDRLNRMNQAAKHFLLQ-
                                                            AECAVNTIKSDLEIFGRLTPVG----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                         60/091360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/090355
                                                                                                                                             26;
                                                                                                                                             Score 91.5; DB
Pred. No. 0.58;
6; Mismatches
                                                PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                55;
                                                                                                                                                                       9;
                                                                                                                                                                       Length 919;
                                                                                               ----TVENGSWVG 345
                                                                                                                                                Indels
                                                                                                                                               75;
                                                                                                                                               Gaps
                                               401
                        155
```

8

```
RESULT 5
US-09-989-293A-379
; Sequence 379, App
; Patent No. US2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILE REFERENCE: P2730P1C66
CURRENT APPLICATION NUMBER: US/09/989,293A
CURRENT FILING DATE: 2001-11-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: Secreted and Transmembrane TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P1C66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            156
                                                                                                                                                                                                                                    DR FILING DATE: 1998-05-28

R APPLICATION NUMBER: 60/087607

DR FILING DATE: 1998-06-02

DR APPLICATION NUMBER: 60/087609

DR FILING DATE: 1998-06-02

DR APPLICATION NUMBER: 60/087759

DR APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                OR FILING DATE: 1998-02-25
OR APPLICATION NUMBER: 60/078910
OR FILING DATE: 1998-03-20
OR APPLICATION NUMBER: 60/083322
OR FILING DATE: 1998-04-28
OR APPLICATION NUMBER: 60/084600
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/087106
R FILING DATE:
R APPLICATION NI
R FILING DATE:
R FILING DATE:
R FILING DATE:
R APPLICATION NI
R FILING DATE:
R APPLICATION NI
R FILING DATE:
R APPLICATION NI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1997-11-12
APPLICATION NUMBER: 60/065311
FILING DATE: 1997-11-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/062250 FILING DATE: 1997-10-17 APPLICATION NUMBER: 60/065186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/049787 FILING DATE: 1997-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: FILING DATE: 1997-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              379, Application US/09989293A
o. US20020177164A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Stewart, ...
Stewart, ...
Col
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ashkenazi, Avi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Godowski, Paul J.
Grimaldi, J.Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhang,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gerber, Hanspeter
Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eaton, Dan L.
Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Paoni,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baker,Kevin P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kljavin, Ivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Desnoyers,Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ni, Nicholas F., Margaret Ann wart, Timothy A
                                                    NUMBER: 60/
: 1998-06-04
                                                                                                                                 NUMBER:
                                                                                                                                                                                     NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Zemin
                                                                                                           1998-06-04
                                                                                                                                                               1998-06-03
                                                                                                                                                                                                                   1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1997-11-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4
                                                                                  60/088025
                                                                                                                                   60/088021
                                                                                                                                                                                        60/087827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/075945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/066770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Polypeptides
```

and

Nucleic

```
á
                                                             문
                                                                                          δ
밁
                                                                                                                               Matches
                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
                                                                                                                                                                                                                                                 PRIOR
                                                               310
346
                                                                                                                                                                                                                                                                                                                                                                                                          OR APPLICATION NUMBER: 60/090695
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-26
OR FILING DATE: 1998-06-26
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/090863
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/091360
OR APPLICATION NUMBER: 60/091360
OR FILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091478
                                                                                              17
                              77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090678
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090542
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090557
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090676
                                                                                                                                                                                            APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-23
APPLICATION NUMBER: 60/090429
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-22
APPLICATION UDMBER: 60/090254
FILING DATE: 1998-06-22
APPLICATION UDMBER: 60/090349
                                                                                                                                                                                                                                                              APPLICATION NUMBER: FILING DATE: 1998-07
                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/090694 FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090540 FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090535
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090472
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-23
MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PEGGTSICSGIKYAFQVIGELHS 401
                                                               VLDKSGSMG-
                                                                                LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS
                                CV-----
                                                                                                                           ch 8.2%;
l Similarity 22.8%;
46; Conservative ;
                                                                                                                                                                                            NUMBER: 60/092182
                                                                                                                                                                                                                                                        NUMBER: 60/091978
1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-24
                        ----AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/090355
                                                                                                                             26;
                                                             -GKDRLNRMNQAAKHFLLQ
                                                                                                                           Score 91.5; DB Pred. No. 0.58; 6; Mismatches
                                                                                                                             55;
                                                                                                                                                          9
                                                                                                                                                          Length
                                                                                                                             Indels
                                                                                                                                                             919;
                                                             TVENGSWVG 345
                                                                                                                             75;
                                                                                                                         Gaps
                                                                                            76
                                                                                                                             8
```

PRIOR PRIOR

APPLICATION NUMBER: 60/088876 FILING DATE: 1998-06-11 APPLICATION NUMBER: 60/088861 FILING DATE: 1998-06-11

APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-1 1998-06-10

60/088858

60/088826

APPLICATION NUMBER: 60/088824 FILING DATE: 1998-06-10

APPLICATION NUMBER: 60/ FILING DATE: 1998-06-10

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-10

60/088738

60/088742

APPLICATION NUMBER: PILING DATE: 1998-06

1998-06-10

60/088810

R APPLICATION NUMBER: (
R FILING DATE: 1998-06.
R APPLICATION NUMBER: (
R FILING DATE: 1998-06.
R FILING DATE: 1998-06.
R FILING DATE: 1998-06.

APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-12

1998-06-16

60/089512

60/089440

60/089105

APPLICATION NUMBER: FILING DATE: 1998-0

60/089538

60/089532 60/089514

APPLICATION NUMBER:

FILING DATE:

PRIOR PRIOR

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-05

60/088217

APPLICATION NUMBER: 60/088212 FILING DATE: 1998-06-05

FILING DATE:

APPLICATION NUMBER: 60/088202

1998-06-05

60/088167

1998-06-05

APPLICATION NUMBER: FILING DATE: 1998-0

APPLICATION NUMBER: 60/088033 FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/088326 FILING DATE: 1998-06-04

APPLICATION NUMBER: 60/ FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-04

60/088029 60/088028

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-04

60/088030

APPLICATION NUMBER: 60/088655 FILING DATE: 1998-06-09 APPLICATION NUMBER: 60/088734 FILING DATE: 1998-06-10

PRIOR PRIOR

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-18 1998-06-17

APPLICATION NUMBER: FILING DATE: 1998-06

60/089653

APPLICATION NUMBER: 60/089600 FILING DATE: 1998-06-17

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-1998-06-17 1998-06-17 1998-06-17 1998-06-16 1998-06-16

60/089599 60/089598

R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6

NUMBER: 60/ : 1998-06-22

60/090246

1998-06-19 1998-06-19 1998-06-19 1998-06-18 1998-06-18

60/089952

60/089948 60/089947 806680/09 60/089907 60/089801

APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER:

APPLICATION | FILING DATE: APPLICATION | FILING DATE:

NUMBER: NUMBER:

б 밁 Ş

片

```
; TYPE: PRT
; ORGANISM: Homo Sapien
US-10-063-547-70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-063-547-70
                                                                                                                                                                                                                                RESULT 7
US-09-989-735-379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 70, Application US/10063547 Publication No. US20020182638A1
                                                                                                                                                         Sequence 379, Application US Publication No. US2002019329 GENERAL INFORMATION: APPLICANT: Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEC
SEQ ID NO 70
LENGTH: 919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Prior Application removed - NUMBER OF SEQ ID NOS: 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/063,547
CURRENT FILING DATE: 2002-05-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Wood, William I.
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE
TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Eaton, Dan L. APPLICANT: Filvaroff, E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: P3230R1C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                        459
                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                          402
                                                                                                                                                                                                                                                                                                                                                                                                            116
                                                                                                                                                                                                                                                                                                                                                                                                                                             346 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 310 VLDKSGSMG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17 LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA---
                                                                                                                                                                                                                                                                                                                                     ---DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                            Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CV-----
                                                                                                                                                                                                                                                                                                      YVSDEAQNNGLÍDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                          QLDGSEVLLITDGEDNTASSCIDEVK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Grimaldi, Christopher Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gerritsen, Mary
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Godowski, Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Watanabe, Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Filvaroff, Ellen
 Gerritsen, Mary
Goddard, Audrey
                                    Gerber, Hanspeter
                                                   Fong, Sherman
                                                                       Ferrara, Napoleone
                                                                                     Desnoyers, Luc
Eaton, Dan L.
                                                                                                                        Baker, Kevin P.
Botstein, David
                                                                                                                                                                                              Application US/09989735
b. US20020193299A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----GKDRLNRMNQAAKHFLLQ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -AECAVNTIKSDLEIFGRLTPVG----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                See File Wrapper or Palm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 91.5; D
Pred. No. 0.58
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                          -QSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       91.5;
No. 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      POLYPEPTIDES AND NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 919;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: 60/04
PRIOR FILLING DATE: 1997-06-16
PRIOR FILLING DATE: 1997-10-17
PRIOR FILLING DATE: 1997-10-17
PRIOR FILLING DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/06:
PRIOR APPLICATION NUMBER: 60/06:
PRIOR APPLICATION NUMBER: 60/06:
PRIOR FILLING DATE: 1997-11-13
PRIOR FILLING DATE: 1997-11-24
PRIOR FILLING DATE: 1997-11-24
PRIOR APPLICATION NUMBER: 60/07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: P2730P1C61
CURRENT APPLICATION NUMBER: US/09/989,735
CURRENT FILING DATE: 2001-11-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same
                                                                                                                                                                                              PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06 APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/075945
FILING DATE: 1998-02-25
APPLICATION NUMBER: 60/078910
FILING DATE: 1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/065311 FILING DATE: 1997-11-13 APPLICATION NUMBER: 60/066770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/065186
FILING DATE: 1997-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/049787 FILING DATE: 1997-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-05-07
APPLICATION NUMBER: 60/0
FILING DATE: 1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/062250
                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/088026
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/088021
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/087607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/084600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-04-28
                                  APPLICATION NUMBER: FILING DATE: 1998-00
                                                                       APPLICATION NUMBER: 60/
FILING DATE: 1998-06-05
                                                                                                                                                                             APPLICATION NUMBER: 60/
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                         APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/083322
                                                                                                           FILING DATE:
                                                                                                                                            FILING DATE:
                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Watanabe, Colin K.
Williams, P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Roy, Margaret Ann
Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Grimaldi,J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gurney, Austin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nicholas F.
                                                                                                                            NUMBER:
                                                                                                                                                                                                                                                                                                                                          NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Danie
                                      1998-06-05
                                                                                                          1998-06-05
                                                                                                                                            1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                            1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-03
                                                                                                                                                                                                                  1998-06-04
                                                                                                                                                                                                                                                     1998-06-04
                                                                                                                                                                                                                                                                                       1998-06-04
                                                                                                                                                                                                                                                                                                                        1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-11-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٦.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/087106
                                                      60/088217
                                                                                         60/088212
                                                                                                                            60/088202
                                                                                                                                                               60/088167
                                                                                                                                                                                                 60/088326
                                                                                                                                                                                                                                    60/088033
                                                                                                                                                                                                                                                                     60/088030
                                                                                                                                                                                                                                                                                                        60/088029
                                                                                                                                                                                                                                                                                                                                          60/088028
                                                                                                                                                                                                                                                                                                                                                                                                            60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/087827
```

5 밁 á 밁 ş

á 밁

OR APPLICATION NUMBER: 60/088810
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088824
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088826
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/08858
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088661
OR APPLICATION NUMBER: 60/088661
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088876
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088976
OR APPLICATION NUMBER: 60/088976

APPLICATION NUMBER: FILING DATE: 1998-06

1998-06-10

60/088742 60/088738 60/088734

APPLICATION FILING DATE:

N NUMBER: 60 E: 1998-06-1 N NUMBER: 60

1998-06-

```
RESULT 8
US-09-990-444-379
; Sequence 379, Application US/09990444
; Sequence 379, US20020193300A1
; Sequence 379, Application US/0; Publication No. US20020193300; GENERAL INFORMATION:
APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David; APPLICANT: Benoyers, Luc; APPLICANT: Eaton, Dan L.
                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
                                                                                                                                                                                                                                                                                402
                                                                                                                                                                                                                                                                                                                                                    346
                                                                                                                                                                                                             459
                                                                                                                                                                                                                                             156
                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                       310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090690
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090694
OR PILING DATE: 1998-06-25
OR FILING DATE: 1998-06-25
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-25
OR FILING DATE: 1998-06-26
OR PILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/090862
OR APPLICATION NUMBER: 60/090863
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/091360
OR APPLICATION NUMBER: 60/091360
OR FILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                       17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                     77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090676
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090540
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090542
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/091626
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091519
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                  MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                                                                         |:|: :|| || ||:
YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA-
                                                                                                                                                                                                                                                                                                                                                                                   CV-----DGIMMETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                     VLDKSGSMG------GKDRLNRMNQAAKHFLLQ-----TVENGSWVG 345
                                                                                                                                                                                                                                                                                OLDGSEVLLLTDGEDNTASSCIDEVK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                          DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26;
                                                                                                                                                                                                             480
                                                                                                                                                                                                                                             174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 91.5; DB Pred. No. 0.58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                -QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              919;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                    401
                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
```

PRIOR

APPLICATION NUMBER: 60/089600 FILING DATE: 1998-06-17

1998-06-17

60/089653

60/089801

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-17

60/089599

R APPLICATION NUMBER: 6 R FILING DATE: 1998-06-R APPLICATION NUMBER: 6 R FILING DATE: 1998-06-

60/090246

60/089952

APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER: FILING DATE: 1998-0

60/089948

60/089947

APPLICATION NUMBER: 60/089908 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089907 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-18 APPLICATION NUMBER: FILING DATE: 1998-0

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-22 1998-06-22 1998-06-19 1998-06-19 1998-06-19

60/090252

APPLICATION NUMBER: 60/090254 FILING DATE: 1998-06-22 APPLICATION NUMBER: 60/090349 FILING DATE: 1998-06-23

APPLICATION NUMBER: 60/ FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-24

APPLICATION NUMBER: FILING DATE: 1998-00 APPLICATION NUMBER: APPLICATION NUMBER: 60/ FILING DATE: 1998-06-24

60/090472 60/090445 60/090444 FILING DATE: 1998-06-24 APPLICATION NUMBER: FILING DATE: 1998-01
APPLICATION NUMBER: APPLICATION NUMBER: FILING DATE: 1998-0

60/090435 60/090431

1998-06-24 1998-06-23

60/090429

60/090355

OR APPLICATION NUMBER: 60/089532
OR FILING DATE: 1998-06-17
OR APPLICATION NUMBER: 60/089538
OR FILING DATE: 1998-06-17
OR APPLICATION NUMBER: 60/089598
OR FILING DATE: 1998-06-17

APPLICATION NUMBER: 60/089512
FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/089514
FILING DATE: 1998-06-16

FILING DATE: 1998-06-12 APPLICATION NUMBER: 60/089440 FILING DATE: 1998-06-16

```
TITLE OF INVENTION: Secretted and Transmembra.
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730FIC19
CURRENT APPLICATION NUMBER: US/09/90,444
CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/062250
PRIOR FILING DATE: 1997-06-16
PRIOR APPLICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/065116
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/06570
PRIOR FILING DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/06770
PRIOR PILING DATE: 1997-11-24
PRIOR APPLICATION NUMBER: 60/075945
PRIOR APPLICATION NUMBER: 60/08312
PRIOR APPLICATION NUMBER: 60/08322
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-03-20
PRIOR PILING DATE: 1998-04-28
PRIOR APPLICATION NUMBER: 60/087106
PRIOR PILING DATE: 1998-05-27
PRIOR APPLICATION NUMBER: 60/087607
PRIOR PILING DATE: 1998-05-28
PRIOR APPLICATION NUMBER: 60/087607
PRIOR PILING DATE: 1998-05-28
PRIOR APPLICATION NUMBER: 60/087607
PRIOR PILING DATE: 1998-05-29
PRIOR PILING DATE: 1998-06-02
PRIOR APPLICATION NUMBER: 60/087607
PRIOR APPLICATION NUMBER: 60/087607
PRIOR APPLICATION NUMBER: 60/088021
PRIOR APPLICATION NUMBER: 60/088021
PRIOR APPLICATION NUMBER: 60/088025
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PRIOR APPLICATION NUMBER: 60/088026
PRIOR PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 60/088026
PRIOR PRIOR APPLICATION NUMBER: 60/088026
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
TITLE OF II
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T: Zhang, Zemin
INVENTION: Secreted and Tra
INVENTION: Acids Encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Watanabe,
Williams,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Godowski, Paul J.
Grimaldi, J. Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gerber, Hanspeter
Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Roy,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gurney, Austin L
Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wood, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Paoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fong
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ni, Nicholas F., Margaret Ann wart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Colin K.
P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Transmembrane Polypeptides and Nucleic ing the Same
                                           PRIOR

  DR FILLING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-18

DR FILLING DATE: 1998-06-18

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-18

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-19

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-19

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-19

DR APPLICATION NUMBER: 60/08

DR FILLING DATE: 1998-06-22

DR APPLICATION NUMBER: 60/08

DR APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  N FILING DATE: 1998-06-16
R APPLICATION NUMBER: 60
R APPLICATION NUMBER: 60
R APPLICATION NUMBER: 60
R APPLICATION NUMBER: 60-17
R FILING DATE: 1998-06-17
R FILING DATE: 1998-06-17
R APPLICATION NUMBER: 60/17
R APPLICATION NUMBER: 60/17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R APPLICATION NUMBER: 60/
R FILING DATE: 1998-06-11
R APPLICATION NUMBER: 60/
R FILING DATE: 1998-06-11
R APPLICATION NUMBER: 60/
R FILING DATE: 1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R FILING DATE: 1998-06-05
R FILING DATE: 1998-06-05
R FILING DATE: 1998-06-05
R APPLICATION NUMBER: 60/01
R FILING DATE: 1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-0
APPLICATION NUMBER:
FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-0
APPLICATION NUMBER:
FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-10
                                                                                                  60/090435
                                                                                                                                                                                                               60/090429
                                                                                                                                                                                                                                                                      60/090355
                                                                                                                                                                                                                                                                                                                          60/090349
                                                                                                                                                                                                                                                                                                                                                                                 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/089947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/089908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/089907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/089801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/089653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/089600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/089599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/089598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/089532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/089514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/089512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/089440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/089105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/088861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/088858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/088826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/088824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/088742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/088738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/088217
                                                                                                                                                      60/090431
```

```
RESULT 9
US-09-989-730-379
; Sequence 379, Application US/09989730
; Publication No. US20020197674A1
; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                   116
                                                                                                                                                                                                                                                                                                    346
                                                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                          459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DR APPLICATION NUMBER: 60/090557

OR FILING DATE: 1998-06-24

OR APPLICATION NUMBER: 60/090676

OR FILING DATE: 1998-06-25

OR APPLICATION NUMBER: 60/090678

OR APPLICATION NUMBER: 60/090690

OR APPLICATION NUMBER: 60/090690
                                                                                                                                                                                                                                                                                                                                       77
                                                                                                                                                                                                                                                                                                                                                                                                         17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R APPLICATION NUMBER: R FILING DATE: 1998-06 R FILING DATE: 1998-06 R FILING DATE: 1998-06 R APPLICATION NUMBER: 6 PAR APPLICATION NUMBER: 6 FILING DATE: 1998-07-R FILING DATE: 1998-07-R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R FILING DATE:
R APPLICATION N
R FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-00
APPLICATION NUMBER:
FILING DATE: 1998-00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/091978 FILING DATE: 1998-07-07 APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/091626 FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091544
FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091519
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: PILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 1998-00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-07-02
                                                                                                                                                      YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                       VLDKSGSMG------GKDRLNRMNQAAKHFLLQ-
                                                                                                                                                                                                                                                                 Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA---
                                                                                                                                                                                                                                                                                                    MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----
                                                                                                                                                                                                                                                                                                                                    CV------DGIKMHETVINQMPP
                                                                                                                                                                                                                           QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                                                                                                                                                                                                                                                                                                                                                              46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                          DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      : 1998-07-07
NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER: 60/091360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER: 60/090862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER: 60/090695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                               8.2%;
22.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/090694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                              26;
                                                                                                                                                        480
                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 91.5; DB
Pred. No. 0.58;
6; Mismatches
                                                                                                                                                                                                                                                                                                  PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                              55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 919;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                       ----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                            75;
                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                    115
                                                                                                                                                                                                                                                               155
                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
TITLE OF IN
TITLE OF IN
                                                                                                                                                                                        PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PPLICANT:
                                                                                                                                                                                                                                                                                         OR FILING DATE: 1998-06-02
OR APPLICATION NUMBER: 60/087609
OR FILING DATE: 1998-06-02
OR FILING DATE: 1998-06-02
OR FILING DATE: 1998-06-02
OR APPLICATION NUMBER: 60/087827
OR APPLICATION NUMBER: 60/087827
OR APPLICATION NUMBER: 60/088021
                        DR FILING DATE: 1998-06-04

OR APPLICATION NUMBER: 60/088029

OR APPLICATION NUMBER: 60/088030

OR APPLICATION NUMBER: 60/088030

OR FILING DATE: 1998-06-04

OR APPLICATION NUMBER: 60/088033

OR FILING DATE: 1998-06-04

OR APPLICATION NUMBER: 60/088033

OR FILING DATE: 1998-06-04

OR APPLICATION NUMBER: 60/088326

OR FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                       OR APPLICATION NUMBER: 60/078910
OR FILING DATE: 1998-03-20
OR APPLICATION NUMBER: 60/083322
OR FILING DATE: 1998-04-28
OR APPLICATION NUMBER: 60/084600
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/087106
OR APPLICATION NUMBER: 60/087607
OR APPLICATION NUMBER: 60/087607
                                                                                                                                                                                  APPLICATION NUMBER: 60/088025
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088026
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/075945 FILING DATE: 1998-02-25
                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ashkenazi, Avi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Roy, Margaret Ann
Chawart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Baker, Kevin P.
Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Williams,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gurney, Austin
Kljavin, Ivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Godowski, Paul J.
Grimaldi, J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gerritsen, Mary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gerber,Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Watanabe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Paoni,Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fong,Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Desnoyers,Luc
                                                                                                                                                                                                                                                                                1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Colin K.
```

S 밁 S 밁 S 문 S

밁

CURRENT APPLICATION NUMBER: US/09/989,730
CURRENT FILING DATE: 2001-11-20
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR FILING DATE: 1997-10-17
PRIOR PELICATION NUMBER: 60/062250
PRIOR PELICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/065186
PRIOR FILING DATE: 1997-11-12
PRIOR PILING DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/066770
PRIOR FILING DATE: 1997-11-24
PRIOR FILING DATE: 1997-11-24
PRIOR FILING DATE: 1997-11-24 TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P1C69

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER: 60/088810 FILING DATE: 1998-06-10 APPLICATION NUMBER: 60/088824

FILING DATE:

1998-06-1

FILING DATE: 1998-06-10 APPLICATION NUMBER: 60/088742

NUMBER: 60/088738 NUMBER: 60/088734

1998-06-10 1998-06-09

R FILING DATE: R APPLICATION N R FILING DATE: R APPLICATION N

NUMBER: 60/088858

NUMBER: 60/088826

1998-06-10 1998-06-10

R FILING DATE: 1998-06 R APPLICATION NUMBER: 0 R FILING DATE: 1998-06 R APPLICATION NUMBER: 0

FILING DATE: 1998-06-11 APPLICATION NUMBER: 60/089105

NUMBER: 60/088876

1998-06-11 1998-06-11

60/088861

PRIOR

A APPLICATION W A FILING DATE: A FILING DATE: A FILING DATE: A APPLICATION W A FILING DATE: A APPLICATION W

NUMBER:

60/088655

NUMBER: 60/088217

1998-06-05 1998-06-05

R FILING DATE:
R APPLICATION :
R FILING DATE:
R APPLICATION I

NUMBER:

1998-06-05 1998-06-05

NUMBER:

60/088167

NUMBER:

60/088212 60/088202

```
밁
                       Ş
                                                    밁
                                                                             S
                                                                                                         밁
                                                                                                                                 Ś
                                                                                                                                                            밁
                                                                                                                                                                                      Ş
                                                                                                                                                                                                                Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                    402
                                                                                                         346
                                                                                                                                                            310
 459
                          156
                                                                             116
                                                                                                                                                                                                                                                                                                                                                                                                                                                        OR FILING DATE: 1998-06-25

OR APPLICATION NUMBER: 60/09

OR FILING DATE: 1998-06-26

OR APPLICATION NUMBER: 60/09

OR FILING DATE: 1998-06-26

OR APPLICATION NUMBER: 60/09

OR FILING DATE: 1998-07-01

OR APPLICATION NUMBER: 60/09

OR FILING DATE: 1998-07-01

OR APPLICATION NUMBER: 60/09

OR FILING DATE: 1998-07-02
                                                                                                                                                                                       17
                                                                                                                                   77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06
R APPLICATION NUMBER:
                                                                                                                                                                                                                                                                   R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
R FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 1998-07 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                               FILING DATE: APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                     NVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY-
                                                                                                                                     CV--
                                                                                                                                                                                    LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                  Q---AAVILLTDGHNINLGMNPVEEVKSIYQTNPNVCFHVVSFA-----
| : |:|||| : | : ::|| | : | : | : | |
| CLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVI
YVSDEAQNNGLIDAFGALTSGN
                       ---DDAEGKAIIDQIVALNSGS
                                                                                                                                                               VLDKSGSMG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LING DATE:
                                                                                                                                                                                                                 l Similarity 22.8
46; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER:
                                                                                                                                                                                                                                                                                                                                      NUMBER:
                                                                                                                                                                                                                                                                                                                                                                NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                           NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER: 60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-24
                                                                                                                                                                                                                                                                       1998-07-09
                                                                                                                                                                                                                                                                                                1998-07-07
                                                                                                                                                                                                                                                                                                                           1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                         1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-24
                                                                                                                                                                                                                                                                                                                                                    1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-24
                                                                                                                                                                                                                              8.2%;
                                                                                                                      -AECAVNTIKSDLEIFGRLTPVG-----DGTKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/090435
                                                                                                                                                                                                                                                                                   60/092182
                                                                                                                                                                                                                                                                                                             60/091982
                                                                                                                                                                                                                                                                                                                                       60/091978
                                                                                                                                                                                                                                                                                                                                                                60/091633
                                                                                                                                                                                                                                                                                                                                                                                         60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                    60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                                                60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/091360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/090862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/090695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/090694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090444
                                                                                                                                                                                                                 26;
                                                                                                                                                               GKDRLNRMNQAAKHFLLQ
                          174
                                                                                                                                                                                                                 Score 91.5; DI
Pred. No. 0.58
26; Mismatches
                                                                                                                                                                                                                               91.5;
No. 0.
                                                      QSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                                                                                                                                                                                               . 58;
                                                                                                          PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                                                                                                            DB
                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                   55
                                                                                                                                                                                                                                          Length 919;
                                                                                                                                                                                                                    Indels
                                                                                                                                                               ----TVENGSWVG
                                                                                                                                                                                                                   75;
```

OR FILING DATE: 1998-06-12
OR APPLICATION NUMBER: 60/089440
OR FILING DATE: 1998-06-16
OR FILING DATE: 1998-06-16
OR APPLICATION NUMBER: 60/089512
OR FILING DATE: 1998-06-16
OR APPLICATION NUMBER: 60/089534
OR APPLICATION NUMBER: 60/089532

PRIOR

REPLING DATE: I APPLICATION WI FILING DATE: I APPLICATION WI APPLICATION WI FILING DATE: I APPLICATION WI FILING DATE: I APPLICATION WI FILING DATE: I APPLICATION WI APPLICATION WI APPLICATION WI FILING DATE: I APPLICATION WI APPLICATION WI FILING DATE: I APPLICATION WI APPLICATION WI FILING DATE: I APPLICATION WI FILING DATE: I APPLICATION WI

NUMBER: 60/090254 NUMBER: 60/090252 NUMBER: 60/090246 NUMBER: 60/089952 NUMBER: 60/089948 1998-06-19

1998-06-22 1998-06-22 1998-06-22 1998-06-19

NUMBER: 60/090429

1998-06-24 1998-06-23

NUMBER: NUMBER:

60/090355 60/090349

1998-06-23

DR FILING DATE: 1998-06-17

PR APPLICATION NUMBER: 60/089599

DR FILING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/089600

DR FILING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/089653

DR APPLICATION NUMBER: 60/089610

DR APPLICATION NUMBER: 60/089801

DR FILING DATE: 1998-06-18

DR FILING DATE: 1998-06-18

FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089598

FILING DATE: 1998-00 APPLICATION NUMBER:

1998-06-17

60/089538

APPLICATION NUMBER: 60/089907 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089908 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089947

1998-06-

Gaps

8

458

155

401

```
RESULT 10
US-09-990-436-379
; Sequence 379, Application US/;
; Publication No. US20020198148;
; Publication No. US20020198148;
; GENERAL INFORMATION;
; APPLICANT: Baker, Kevin P.;
; APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Zhang, Zemin
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C14
CURRENT APPLICATION NUMBER: US/09/990,436
CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR PILING DATE: 1997-06-16
PRIOR PELICATION NUMBER: 60/062250
PRIOR PILING DATE: 1997-10-17
PRIOR PILING DATE: 1997-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                        OR APPLICATION NUMBER: 60/066770
OR FILING DATE: 1997-11-24
OR APPLICATION NUMBER: 60/075945
OR APPLICATION NUMBER: 60/075945
OR APPLICATION NUMBER: 60/078910
OR FILING DATE: 1998-03-20
OR APPLICATION NUMBER: 60/083322
OR APPLICATION NUMBER: 60/084600
OR APPLICATION NUMBER: 60/084600
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/087106
OR APPLICATION NUMBER: 60/087106
OR APPLICATION NUMBER: 60/087106
OR APPLICATION NUMBER: 60/087106
                                                                                                                                                     R APPLICATION N
R TILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
R APPLICATION N
R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
                                   R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
                                                                                                                  FILING DATE: APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/065311
FILING DATE: 1997-11-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Watanabe, Colin K. Williams, P. Mickey Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Roy, Margaret Ann
Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Godowski, Paul J.
Grimaldi, J. Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gurney, Austin
Kljavin, Ivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gerritsen, Mary E. Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Desnoyers, Luc
Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Paoni,Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/09990436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US20020198148A1
                                                       NUMBER: 60/
: 1998-06-04
                                     NUMBER: 60/088029
                                                                                                               NUMBER:
                                                                                                                                                     NUMBER: 60/088025
                                                                                                                                                                                            NUMBER: 60/088021
                                                                                                                                                                                                                                        NUMBER:
                                                                                                                                                                                                                                                                             NUMBER:
                                                                                                                                                                                                                                                                                                                NUMBER: 60/087609
                                                                                                                                                                                                                                                                                                                                                          NUMBER:
                                                                                             1998-06-04
                                                                                                                                  1998-06-04
                                                                                                                                                                            1998-06-04
                                                                                                                                                                                                                 1998-06-03
                                                                                                                                                                                                                                                          1998-06-02
                                                                                                                                                                                                                                                                                                  1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Daniel
                1998-06-04
                                                                                                                                                                                                                                                                                                                                       1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                  60/088026
                                                                                                                                                                                                                                    60/087827
                                                                                                                                                                                                                                                                           60/087759
                                                                                                                                                                                                                                                                                                                                                          60/087607
                                                                          60/088028
60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ۲
```

PRIOR OR FILING DATE: 1998-06-17
OR APPLICATION NUMBER: 60/089599
OR FILING DATE: 1998-06-17
OR APPLICATION NUMBER: 60/089600
OR FILING DATE: 1998-06-17
OR APPLICATION NUMBER: 60/089600
OR FILING DATE: 1998-06-17
OR APPLICATION NUMBER: 60/089653
OR FILING DATE: 1998-06-18
OR APPLICATION NUMBER: 60/089907
OR FILING DATE: 1998-06-18
OR APPLICATION NUMBER: 60/089907
OR FILING DATE: 1998-06-18
OR APPLICATION NUMBER: 60/089947
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089947
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089948
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/08952
OR APPLICATION NUMBER: 60/090254
OR APPLICATION NUMBER: 60/090252
OR APPLICATION NUMBER: 60/090254
OR APPLICATION NUMBER: 60/090254 OR FILING DATE: 1998-06-09
OR APPLICATION NUMBER: 60/088734
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088738
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088742
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088810
OR APPLICATION NUMBER: 60/088824
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088824
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088826
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088868
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088868
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088861
OR APPLICATION NUMBER: 60/088861 OR APPLICATION NUMBER: 60/088876
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/089105
OR FILING DATE: 1998-06-12
OR APPLICATION NUMBER: 60/089440
OR FILING DATE: 1998-06-16 R FILING DATE: 1998-06-04
R APPLICATION NUMBER: 60/0
R FILING DATE: 1998-06-04
R APPLICATION NUMBER: 60/0
R FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/089532 FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089538 FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089512 FILING DATE: 1998-06-16 APPLICATION NUMBER: 60/089514 FILING DATE: 1998-06-16 FILING DATE: 1998-06 APPLICATION NUMBER: APPLICATION NUMBER: 60/088212 FILING DATE: 1998-06-05 APPLICATION NUMBER: 60/088217 APPLICATION NUMBER: 60/088202 FILING DATE: 1998-06-05 APPLICATION NUMBER: 60/088167 1998-06-05 1998-06-05 60/088655 60/088033 60/088326

```
S
                                                   밁
                                                                           á
                                                                                                        밁
                                                                                                                              ঠ
맑
                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                   PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
402
                          116
                                                    346
                                                                                                        310
                                                                              77
                                                                                                                                17
                                                                                                                                                                                                                                                                                  FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
TITME DATE: 1998-07-02
                                                                                                                                                                                                                                                        FILING DATE: 1998-0/-02
APPLICATION NUMBER: 60/091978
APPLICATION DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090695
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090696
FILING DATE: 1998-06-25
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090678
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090694
                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/091360
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090862 FILING DATE: 1998-06-26 APPLICATION NUMBER: 60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090557
                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION N
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                              APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-24
                                                                                                                                 LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS
                                                  MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY
                                                                               CV---
QLDGSEVLLITDGEDNTASSCIDEVK---
                         Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                                                        VLDKSGSMG-----TVENGSWVG
                                                                                                                                                            46;
                                                                                                                                                                          Similarity
                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER: 60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-2
                                                                                                                                                                       8.2%;
                                                                              AECAVNTIKSDLEIFGRLTPVG----DGIKMHETVINQMPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/090355
                                                                                                                                                          Pred. No. 0.58
26; Mismatches
                                                                                                                                                                        Score 91.5; DB Pred. No. 0.58;
-QSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                  PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                                                  9;
                                                                                                                                                            55;
                                                                                                                                                                                  Length 919;
                                                                                                                                                            Indels
                                                                                                                                                          75;
                                                                                                                                                            Gaps
                                                                              115
                                                                                                                                 76
                          155
                                                   401
                                                                                                        345
                                                                                                                                                            8
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 11
US-09-991-181-379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                    CURRENT ELLING DATE: US/09/991,181
CURRENT ELLING DATE: 2001-11-16
PRIOR APPLICATION NUMBER: 60/049787
PRIOR PELING DATE: 1997-06-16
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-11-12
PRIOR PELICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/06511
PRIOR PILING DATE: 1997-11-12
PRIOR PILING DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/066770
PRIOR APPLICATION NUMBER: 60/066770
PRIOR APPLICATION NUMBER: 60/075945
PRIOR PILING DATE: 1998-02-25
PRIOR APPLICATION NUMBER: 60/078910
PRIOR PILING DATE: 1998-02-25
PRIOR APPLICATION NUMBER: 60/078910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 379, 1
Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P1C53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                            PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                          PRIOR
                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                              PRIOR PRIOR
                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                          R FILING DATE: 1998-02-25
R APPLICATION NUMBER: 60/07
R FILING DATE: 1998-03-20
R RAPPLICATION NUMBER: 60/01
R RFILING DATE: 1998-04-28
                                                                                                                              R FILING DATE: 1998-05-28
R FAPLICATION NUMBER: 60/08
R FILING DATE: 1998-06-02
R APPLICATION NUMBER: 60/08
R FILING DATE: 1998-06-02
R FILING DATE: 1998-06-02
R FILING DATE: 1998-06-02
                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/084600 FILING DATE: 1998-05-07
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-04
                                                              APPLICATION NUMBER: 60/
FILING DATE: 1998-06-03
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                               APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ashkenazi, Avi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Watanabe, Colin K. Williams, P. Mickey Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eaton, Dan L.
Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Paoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gurney, Austin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Grimaldi, J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Godowski,Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerritsen, Mary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Application US/09991181
o. US20020197615A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Margaret Ann art, Timothy
                                                                                                                                                                                                                                               NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Nicholas F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Danie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4
                                                60/088025
                                                                                                                  60/087827
                                                                                                                                                60/087759
                                                                                                                                                                               60/087609
                                                                                                                                                                                                                60/087607
                                                                                                                                                                                                                                               60/087106
                                                                                                                                                                                                                                                                                                             60/083322
                                                                                60/088021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              174
```

```
밁
                                  Ś
                                                                            밁
                                                                                                              Ś
                                                                                                                                                    Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
  346
                                                                            310
                                                                                                                                                                                                                            OR APPLICATION NUMBER: 60/090863
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/091360
OR APPLICATION NUMBER: 60/091360
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/09154
OR APPLICATION NUMBER: 60/09154
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091519
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091626
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091633
OR APPLICATION NUMBER: 60/091633
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091978
OR FILING DATE: 1998-07-07
OR APPLICATION NUMBER: 60/091978
OR APPLICATION NUMBER: 60/091978
OR APPLICATION NUMBER: 60/091978
OR APPLICATION NUMBER: 60/091982
OR APPLICATION NUMBER: 60/091982
OR APPLICATION NUMBER: 60/092182
OR APPLICATION NUMBER: 60/092182
OR APPLICATION NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090472
OR APPLICATION NUMBER: 60/090535
OR PILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090540
OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090540
OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/09057
OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/09057
OR APPLICATION NUMBER: 60/090676
OR APPLICATION NUMBER: 60/090676
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090690
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090694
OR APPLICATION NUMBER: 60/090694
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090695
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
                                      77
                                                                                                                  17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090444
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090435
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 1998-00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090429
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: FILING DATE: 1998-00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-23
                                                                                                MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----
                                          CV---
                                                                              VLDKSGSMG-
                                                                                                                                                      46;
                                                                                                                                                                        Similarity
                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-24
                                    ----AECAVNTIKSDLEIFGRLTPVG-----DGIKWHETVINQMPP 115
                                                                                                                                                                        8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/090349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/090254
                                                                                                                                                    26;
                                                                        |: ::| |
-GKDRLNRMNQAAKHFLLQ-
                                                                                                                                                  Score 91.5; D
Pred. No. 0.58
26; Mismatches
                                                                                                                                                                      DB;
PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                                                      9;
                                                                                                                                                    55;
                                                                                                                                                                                          Length
                                                                          ----TVENGSWVG 345
                                                                                                                                                    Indels
                                                                                                                                                                                          919;
                                                                                                                                                    75;
                                                                                                                                                    Gaps
  401
                                                                                                                76
                                                                                                                                                    8
```

PRIOR

APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-11 1998-06-

60/089105

60/088876 60/088861

1998-06-1998-06-10 1998-06-10

60/088858

APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER:

1998-06-10 1998-06-10 1998-06-10

60/088824 60/088810

60/088826

FILING DATE:

APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0

> 60/088742 60/088738

R APPLICATION NUMBER: (
R FILING DATE: 1998-06.
R APPLICATION NUMBER: (
R FILING DATE: 1998-06.
R FILING DATE: 1998-06.
R FILING DATE: 1998-06.

1998-06-16 1998-06-16

APPLICATION NUMBER: FILING DATE: 1998-06

60/089512

APPLICATION NUMBER: 60/089440 FILING DATE: 1998-06-16 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-12

R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-

60/089600

1998-06-17 1998-06-17 1998-06-17

APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-17 1998-06-17 1998-06-17

60/089598 60/089538 60/089532 60/089514

60/089599

R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6

60/089952 60/089948

1998-06-22 NUMBER: 60/ 1998-06-19 FILING DATE: 1998-01 APPLICATION NUMBER: FILING DATE: 1998-01

1998-06-18

60/089907 60/089801 60/089653

806680/09

1998-06-

1998-06-

60/089947

APPLICATION NUMBER: 60/ FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/

OR APPLICATION NUMBER: 60/088202
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088212
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088217
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088655
OR FILING DATE: 1998-06-09
OR APPLICATION NUMBER: 60/088734
OR APPLICATION NUMBER: 60/088734
OR FILING DATE: 1998-06-10

APPLICATION NUMBER: FILING DATE: 1998-06

1998-06-04 1998-06-04

APPLICATION NUMBER: FILING DATE: 1998-06

APPLICATION NUMBER: 60/ FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-04

APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-06

1998-06-05 1998-06-04

60/088167 60/088326 60/088033 60/088030 60/088029 60/088028

5 В Ś

밁

```
APPLICANT: Wood, William I.
APPLICANT: Zhang, Zemin
TITIE OF INVENTION: Secreted and Transmembrane Pol
TITIE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C11
CURRENT APPLICATION NUMBER: US/09/993,687
CURRENT EPLING DATE: 2002-11-14
PRIOR APPLICATION NUMBER: 60/042787
PRIOR FILLING DATE: 1997-06-16
PRIOR FILLING DATE: 1997-10-17
PRIOR FILLING DATE: 1997-10-17
PRIOR FILLING DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/06770
PRIOR FILLING DATE: 1997-11-24
PRIOR APPLICATION NUMBER: 60/075945
PRIOR FILLING DATE: 1998-01-24
PRIOR APPLICATION NUMBER: 60/078910
PRIOR FILLING DATE: 1998-02-25
PRIOR APPLICATION NUMBER: 60/078910
PRIOR APPLICATION NUMBER: 60/078910
PRIOR APPLICATION NUMBER: 60/08322
PRIOR APPLICATION NUMBER: 60/08322
PRIOR APPLICATION NUMBER: 60/084600
PRIOR APPLICATION NUMBER: 60/084600
PRIOR APPLICATION NUMBER: 60/08706
PRIOR APPLICATION NUMBER: 60/087106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 12
US-09-993-687-379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 379, A Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     459
DR APPLICATION NUMBER: 60/08
R FILING DATE: 1998-05-28
R APPLICATION NUMBER: 60/08
DR FILING DATE: 1998-06-02
R APPLICATION NUMBER: 60/08
DR FILING DATE: 1998-06-02
DR APPLICATION NUMBER: 60/08
DR FILING DATE: 1998-06-02
DR APPLICATION NUMBER: 60/08
R FILING DATE: 1998-06-03
DR APPLICATION NUMBER: 60/08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YVSDEAQNNGLIDAFGALTSGN 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ashkenazi, Avi J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Paoni, Nicholas F.
Roy, Margaret Ann
Stewart, Timothy A.
Tumas, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Watanabe, Colin P
Williams, P. Mick
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Godowski,Paul J.
Grimaldi,J.Christopher
Gurney,Austin_L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gerritsen, Mary
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baker, Kevin P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kljavin, Ivar J
Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Application US/09993687
DS20020198149A1
N NUMBER: 60/087759
E: 1998-06-02
N NUMBER: 60/087827
E: 1998-06-03
                                                                             NUMBER: 60/087609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Colin K.
P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ġ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
                                                                                                         PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                        PRIOR
                                                                                                                                                                                                                                                                                                                                        R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
                              R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
                                                                                                                                                                                                                                                              R FILING DATE:
R APPLICATION NI
R FILING DATE:
R APPLICATION NI
R FILING DATE:
                                                                                                                                                                                                  APPLICATION N
FILING DATE:
APPLICATION N
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/
FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/0
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60 FILING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-04
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                       APPLICATION N
FILING DATE:
                                                                                                                                                                     APPLICATION FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/089105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
 FILING DATE:
                                                                                                                           APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DATE:
                                                                                                                                                                                                                                 NUMBER: 60
                                                                             NUMBER: 60: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER:
                                                                                                                           NUMBER:
                                                                                                                                                       NUMBER:
                                                                                                                                                                                       NUMBER:
                                                                                                                                                                                                                   NUMBER:
                                                                                                                                                                                                                                                                               NUMBER:
                                                                                                                                                                                                                                                                                                             NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-04
                                                                                                           1998-06-18
                                                                                                                                                                                                   1998-06-1
                                                                                                                                                                                                                                                                 1998-06-17
                                                                                                                                                                                                                                                                                               1998-06-17
                                                                                                                                                                                                                                                                                                                             1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                    1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-
                  1998-06-
                                                1998-06-18
                                                                                                                                         1998-06-1
                                                                                                                                                                       1998-06-1
                                                                                                                                                                                                                                                                                                                                                         1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/088326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/088029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/088025
                                  60/089947
                                                                                             60/089907
                                                                                                                         60/089801
                                                                                                                                                       60/089653
                                                                                                                                                                                     60/089600
                                                                                                                                                                                                                   60/089599
                                                                                                                                                                                                                                                60/089598
                                                                                                                                                                                                                                                                               60/089538
                                                                                                                                                                                                                                                                                                             60/089532
                                                                                                                                                                                                                                                                                                                                           60/089514
                                                                                                                                                                                                                                                                                                                                                                         60/089512
                                                                                                                                                                                                                                                                                                                                                                                                       60/089440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/088876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/088861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/088858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/088826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/088824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/088810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/088742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/088738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/088212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/088033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/088026
                                                               60/089908
```

```
Ş
                                              Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
             17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                    FILING DATE: 1998-07-09
APPLICATION NUMBER: 60/09182
FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090694
FILING DATE: 1998-06-25
                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 1998-07
                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/091519
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 61 FILING DATE: 1998-07-
                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/091478 FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/090695
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090542
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090445 FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090444
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/090349 FILING DATE: 1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090252
FILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-22
                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                           APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                            FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/089952
FILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090540
                                              1 Similarity 22.8
46; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-23
                                                                                                                                                                              1998-07-07
                                                                                                                                                                                                            1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-23
                                                                                                                                                                                                                                                                                                                                                                           1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-24
                                      8.2%; pred
22.8%; pred
26;
                                                                                                                                                                                                                                                                                                                                                                                     60/091360
                                                                                                                                                                                                                         60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090246
                                                                                                                                                                                                                                                                                                                         60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/090862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/090435
                                              Score 91.5; DB
Pred. No. 0.58;
6; Mismatches
::
--
                                             55;
                                                                         9;
                                                                           Length 919;
                                              Indels
                                           75;
```

Gaps

```
RESULT 13
US-09-989-734-379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                      CURRENT FILING DATE: 2001-11-19
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR APPLICATION NUMBER: 60/062250
PRIOR APPLICATION NUMBER: 60/062250
PRIOR FILING DATE: 1997-10-17
PRIOR APPLICATION NUMBER: 60/065186
PRIOR FILING DATE: 1997-11-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 379, A Publication No.
                                                                                                                                     PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P1C64
                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION NUMBER: US/09/989,734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156
OR FILING DATE: 1998-04-28
OR APPLICATION NUMBER: 60/084600
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/087106
OR FILING DATE: 1998-05-28
OR APPLICATION NUMBER: 60/087607
OR FILING DATE: 1998-06-02
OR APPLICATION NUMBER: 60/087609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/062250 FILING DATE: 1997-10-17 APPLICATION NUMBER: 60/065186 FILING DATE: 1997-11-12
                                                                                                                                 APPLICATION NUMBER: 60/078910 FILING DATE: 1998-03-20 APPLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/065311
FILING DATE: 1997-11-13
APPLICATION NUMBER: 60/066770
                                                                                                                                                                                    APPLICATION NUMBER: 60/075945 FILING DATE: 1998-02-25
                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YVSDEAQNNGLIDAFGALTSGN 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CV---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                VLDKSGSMG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Godowski, Paul J.
Grimaldi, J. Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Williams,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Watanabe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gerritsen, Mary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerber,Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baker, Kevin P.
Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Paoni, Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/09989734
b. US20030003531A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Margaret Ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Daniel
                                                                                                                                                                                                                       1997-11-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -GKDRLNRMNQAAKHFLLQ--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
```

R APPLICATION
R FILING DATE:
R APPLICATION
R FILING DATE:
R APPLICATION
R APPLICATION
R APPLICATION

NUMBER: NUMBER: 60/ : 1998-06-02

APPLICATION FILING DATE: APPLICATION FILING DATE:

NUMBER:

60/088026

NUMBER: 60/088025

60/088021 60/087827 60/087759

1998-06-04 1998-06-04 1998-06-03

```
PRIOR

                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                 PRIOR PRIOR
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090690
OR APPLICATION NUMBER: 60/090694
OR APPLICATION NUMBER: 60/090694
OR FILING DATE: 1998-06-25
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090695
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-26
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/090863
OR FILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091360
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091544
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091633
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091633
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091633
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DR FILLING DATE: 1998-06-24

RR APPLICATION NUMBER: 60/05

RR APPLICATION NUMBER: 60/05

RR FILLING DATE: 1998-06-24

RR APPLICATION NUMBER: 60/05

RR APPLICATION NUMBER: 60/05

RR FILLING DATE: 1998-06-24

RR FILLING DATE: 1998-06-24

RR APPLICATION NUMBER: 60/05

RR APPLICATION NUMBER: 60/05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R APPLICATION NUMBER: 60/09
R FILING DATE: 1998-06-24
RR APPLICATION NUMBER: 60/09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R APPLICATION NUMBER:

R FILING DATE: 1998-06.

R APPLICATION NUMBER:

R FILING DATE: 1998-06.

R FILING DATE: 1998-06.

R FILING DATE: 1998-06.

R FILING DATE: 1998-06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R FILING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R FILING DATE: 1998-06-
R APPLICATION NUMBER: (
R FILING DATE: 1998-06-
R APPLICATION NUMBER: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090676
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER: 60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/090349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/090246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/089947
```

PRIOR

OR APPLICATION NUMBER: 60/088028
OR APPLICATION NUMBER: 60/088028
OR PILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088030
OR PILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088030
OR PILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088030
OR PILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088167
OR APPLICATION NUMBER: 60/088202
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088212
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088212
OR PILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088212
OR APPLICATION NUMBER: 60/088734
OR APPLICATION NUMBER: 60/088734
OR APPLICATION NUMBER: 60/088734
OR APPLICATION NUMBER: 60/088810
OR APPLICATION NUMBER: 60/088810
OR APPLICATION NUMBER: 60/088826
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088826
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088826
OR APPLICATION NUMBER: 60/088826
OR APPLICATION NUMBER: 60/088826
OR APPLICATION NUMBER: 60/089510
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089513
OR APPLICATION NUMBER: 60/089513
OR APPLICATION NUMBER: 60/08953

Query Match

Score 91.5; DВ 9 Length 919;

```
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C38
CURRENT PILIUG DATE: 2001-11-15
PRIOR APPLICATION NUMBER: 60/049787
PRIOR PILIUG DATE: 1997-06-16
PRIOR FILIUG DATE: 1997-06-16
PRIOR FILIUG DATE: 1997-06-16
PRIOR FILIUG DATE: 1997-11-17
PRIOR APPLICATION NUMBER: 60/06250
PRIOR FILIUG DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/065186
PRIOR PILIUG DATE: 1997-11-13
PRIOR PILIUG DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/06570
PRIOR FILIUG DATE: 1997-11-24
PRIOR APPLICATION NUMBER: 60/066770
PRIOR FILIUG DATE: 1997-11-24
PRIOR APPLICATION NUMBER: 60/075945
PRIOR FILIUG DATE: 1998-02-25
PRIOR APPLICATION NUMBER: 60/078910
PRIOR FILIUG DATE: 1998-03-20
PRIOR FILIUG DATE: 1998-03-20
PRIOR PILIUG DATE: 1998-04-28
PRIOR APPLICATION NUMBER: 60/083322
PRIOR APPLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ई
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 14
US-09-997-653-379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: ABhkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 379, Appublication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
 PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77
R APPLICATION N
R FILING DATE:
R APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VLDKSGSMG-----GKDRLNRMNQAAKHFLLQ-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YVSDEÁQNNGLÍDAFGÁLTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q---AAVILLTDGHNNLGMNPVBEVKSIYQTNPNVCFHVVSFA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QLDGSEVLLLTDGEDNTASSCIDEVK---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l Similarity
46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fong, Sherman
Gerber, Hanspeter
Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Grimaldi, J.Christopher Gurney, Austin L. Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Watanabe, Colin K.
Williams, P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Roy, Margaret Ann
Stewart, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/09997653 o. US20030008297A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                NUMBER: 60/084600: 1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nicholas F.
 NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ki,Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Danie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            , Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred. No. 0.58;
6; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                  PRIOR
                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR PRIOR
                PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
                                                                                                                                                                                                                                                      OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088876
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/089105
OR FILING DATE: 1998-06-12
OR APPLICATION NUMBER: 60/089440
OR FILING DATE: 1998-06-16
OR FILING DATE: 1998-06-16
OR FILING DATE: 1998-06-16
OR APPLICATION NUMBER: 60/089512
                                                                                                                                                 R FILING DATE: 1998-06-16
R APPLICATION NUMBER: 60/089514
R FILING DATE: 1998-06-16
R APPLICATION NUMBER: 60/089532
R FILING DATE: 1998-06-17
R APPLICATION NUMBER: 60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DR FILING DATE: 1998-05-28
R APPLICATION NUMBER: 60/087607
DR FILING DATE: 1998-06-02
DR APPLICATION NUMBER: 60/087609
DR FILING DATE: 1998-06-02
DR APPLICATION NUMBER: 60/087759
DR APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R FILING DATE: 1998-06-05
R APPLICATION NUMBER: 60/08
R FILING DATE: 1998-06-05
R APPLICATION NUMBER: 60/08
R APPLICATION NUMBER: 60/08
R APPLICATION NUMBER: 60/08
R APPLICATION NUMBER: 60/09
R FILING DATE: 1998-06-09
                                                              R FILING DATE: 1998-06-17
R APPLICATION NUMBER: 60/01
R FILING DATE: 1998-06-17
R APPLICATION NUMBER: 60/01
R APPLICATION NUMBER: 60/01
R FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/088033
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088326
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088167
                APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088858
FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/088861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088824
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088030
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088028
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088025
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087827
FILING DATE: 1998-06-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-00
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/088026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/088021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-05
                                1998-06-17
                                                  60/089600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/088810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/088742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/088202
                                                                                                                    60/089598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/088738
                                                                                  60/089599
```

NUMBER: 60/089801

```
PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                  PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                 PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
FILING DATE: 1998-07-07
                                                                                                                                                                                             FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/090863
FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/091360
APPLICATION NUMBER: 60/091360
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090445
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/090431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090678
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090246 FILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/089947
                                                                                                                  APPLICATION NUMBER: 60/091519
                                                                                                                                 APPLICATION NUMBER: 60/091544
FILING DATE: 1998-07-01
                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                  APPLICATION NUMBER: 60/091478
                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090862
                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/090695
                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090694
                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090557
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER: 60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-1
                                                                                                                                                                 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-1
                                                                                                                                                                                                                                                                                                 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/090254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/089908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/089907
```

```
; LENGTH: 919
; TYPE: PRT
; ORGANISM: HOMO S
US-10-174-590-258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
US-10-174-590-258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                      В
                                                                                                             밁
                                                                                                                               .₽
                                                                                                                                                                    밁
                        á
                                                                                                                                                                                                                                                                                                                                        Prior application removed - NUMBER OF SEQ ID NOS: 612 SEQ ID NO 258
                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 46; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 258, A Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Zhang,Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C42
CURRENT APPLICATION NUMBER: US/10/174,590
CURRENT FILING DATE: 2002-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        346 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 310 VLDKSGSMG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459 YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   402
459
                           156
                                                       402
                                                                                   116
                                                                                                            346 MVHFDSTATIVNKLIQIKSSDERNTLWAGLPTY----PLGGTSICSGIKYAPQVIGELHS 401
                                                                                                                                                                     310 VLDKSGSMG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS
                                                                                                                                         77
                                                                                                                                                                                              17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OLDGSEVLLLTDGEDNTASSCIDEVK---OSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CV-----DGIKWHETVINQMPP 115
YVSDEAQNNGLIDAFGALTSGN
                          ---DDAEGKAIIDQIVALNSGS 174
                                                                                                                                           CV-----
                                                      QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Desnoyers, Luc
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Watanabe, Colin Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/10174590
                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US20030008352A1
                                                                                                                                                                                                                                                                                               Sapier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kevin P.
                                                                                                                                        ----AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----GKDRLNRMNQAAKHFLLQ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8.2%;
                                                                                                                                                                                                                                        8.2%;
                                                                                                                                                                     ----GKDRLNRMNQAAKHFLLQ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7
                                                                                                                                                                                                                                                                                                                                                                      See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; Score 91.5; ; Pred. No. 0.5; 26; Mismatches
                                                                                                                                                                                                                             26;
                                                                                                                                                                                                                          Score 91.5; D
Pred. No. 0.58
26; Mismatches
 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         174
                                                                                                                                                                                                                                                                                                                                                                   File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .58;
                                                                                                                                                                                                                                          DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                      or Palm
                                                                                                                                                                                                                                                      Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----TVENGSWVG 345
                                                                                                                                                                      -----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                             75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          75;
                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
                                                                                    155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                             8
```

Search completed: April 9, 2003, 14:41:23 Job time : 40 secs

```
Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Searched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
A Geneseq 101002:*

1: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1984.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1987.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1987.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1987.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1997.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein search, using sw model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-034-500-2
1119
1 AEVTASCTKRVESYNYLVDY......QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Minimum Match 0%
Maximum Match 100%
Listing first 45 s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gapop 10.0 , Gapext 0.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             April 9, 2003, 14:18:16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.4 p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Search time 74 Seconds (without alignments) 392.549 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      908470
```

Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being pland is derived by analysis of the total score distribution. printed,

Result No.	Score	Query Match Length DB	Length	DB	ID	Description
۲	92	8.2	868	22	AAU29749	Novel human secret
2	92	8.2	906	22	AAU29751	Novel human secret
ω	91.5	8.2	917	23	AAE22687	Human CS193 consen
4	91.5	8.2	917	23	AAU88029	Human calcium-acti
υī	91.5	8.2	919	21	AAY66749	Membrane-bound pro
σ	91.5	8.2	919	22	AAU29152	Human PRO polypept
7	91.5	8.2	919	22	AAB87560	Human PRO1124. Ho
8	91.5	8.2	919	22	AAB65272	Human PRO1124 (UNQ
9	91.5	8.2	931	22	ABB11973	Human membrane-bou
10	90.5	8.1	375	22	AAU52280	Propionibacterium

Tang

YT,

Drmanac

RT

(HYSE-)

HYSEQ INC. Liu C,

WPI; 2001-611725/70.

Nucleic acids encoding a range of human polypeptides, useful in genetic vaccination, testing and therapy

## ALIGNMENTS

```
RESULT 1
AAU29749
Human; vaccination; gene therapy; nutritional supplement; stem cell proliferation; hasmatopoiesis; nerve tissue regeneration; immune suppression; immune stimulation; anti-inflammatory; leukaemi
                                                                                 18-APR-2000; 2000US-0552929.
26-JAN-2001; 2001US-0770160.
                                                                                                              16-APR-2001; 2001WO-US08656
                                                                                                                                                   WO200179449-A2
                                                                                                                                                                    Homo sapiens.
                                                                                                                                                                                                                            Novel human secreted protein #240
                                                                                                                                                                                                                                               18-DEC-2001 (first entry)
                                                                                                                                                                                                                                                                  AAU29749;
                                                                                                                                                                                                                                                                                      AAU29749 standard; Protein; 868 AA.
                                                                                                                                25-OCT-2001.
```

```
polypeptides and antibodies to the polypeptides are useful for determining the presence of or predisposition to a disease associated with altered levels of polypeptide. The polypeptides are also useful for identifying agents (agonists and antagonists) that bind to them. Cells expressing the proteins are useful for identifying a therapeutic agent for use in treatment of a pathological interactions of the polypeptide and cells genetically the nucleic acids encoding the polypeptides and cells genetically the nucleic acids encoding the polypeptides and cells genetically engineered to express them are also useful for producing the proteins. The proteins are useful in genetic vaccination, testing and concerned to express them are also useful for producing the proteins. They are used to therapy, and can be used as nutritional supplements. They may be used to increase stem cell proliferation; to regulate haematopoiesis; and in bone, cartilage, tendon and/or nerve tissue growth or regeneration; immune suppression and/or stimulation; as anti-inflammatory agents; and in treatment of leukaemias. AAU29510-AAU33304 represent the amino acid sequences of novel human secreted proteins of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 34
                                                                                                                                                                                   18-APR-2000;
26-JAN-2001;
                                                                                                                                                                                                                                                                                                                                                                                                        Human; vaccination; gene therapy; nutritional supplement; stem cell proliferation; haematopoiesis; nerve tissue regeneration; immune suppression; immune stimulation; anti-inflammatory; leukaemia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
  Nucleic acids encoding a range of human polypeptides, useful vaccination, testing and therapy -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Novel human secreted protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim
                                                                WPI; 2001-611725/70
                                                                                                    Tang YT,
                                                                                                                                                                                                                                                 16-APR-2001; 2001WO-US08656.
                                                                                                                                                                                                                                                                                                                               WO200179449-A2
                                                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAU29751 standard; Protein; 906 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16 YLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LTDGHNNLGMNPVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SCVAECA-----VNTIKSDLEIFGRLTPVGDGIKMHETVIN-----QMPPQAA--VIL 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FVIDISGSMAGR-----KLEQTKEÄLLRILEDMQEEDY----LNFILFSGDV--STWK 326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EHLVQATPENLQEARTFVKSMEDKG-MTNINDGLLRGISMLNKAREEHRIPERSTSIVIM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LTDGDANVGESRPEKIQ 402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20; Page 189; 765pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34;
                                                                                                                                             HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                      Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      868 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                     2000US-0552929
2001US-0770160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                        Drmanac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8.2%;
                                                                                                        꼅
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 92;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           #242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     human secreted polypeptides.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .89;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22; Length 868;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . The
                         'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                      genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 s; and acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7;
```

Ś

밁 Ś

밁 ঠ 밁

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The invention relates to novel human secreted polypeptides. The polypeptides and antibodies to the polypeptides are useful for determining the presence of or predisposition to a disease associated with altered levels of polypeptide. The polypeptides are also useful for identifying agents (agonists and antagonists) that bind to them. Cells expressing the proteins are useful for identifying a therapeutic agent for use in treatment of a patthology related to aberrant expression or physiological interactions of the polypeptide. Vectors comprising the nucleic acids encoding the polypeptides and cells genetically engineered to express them are also useful for producing the proteins. They may be used to therapy, and can be used as nutritional supplements. They may be used to increase stem cell proliferation; to regulate haematopoiesis; and in CC increase stem cell proliferation; to regulate haematopoiesis; and in treatment of leukaemias. AAU29510-AAU33304 represent the amino acid constructions of novel human secreted proteins of the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                         Billingel
Klass MR,
New purified polynucleotide encoding CS193 diagnosing, staging, monitoring preventing
                                                                                                                                                                                                                                                                                                                 cytostatic
                                                                                                                                                                                                                                                                                                                               Human; CS193; gastrointestinal tract; cancer; gene therapy;
                                                                                                                                                                                                                                                                                                                                                      Human CS193 consensus sequence polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                               27-MAR-1998;
                                                                                                                                                                                                                            09-APR-2002
                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                         26-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAE22687 standard; Protein; 917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 20; Page 189; 765pp; English
                                              N-PSDB; AAD35925
                                                            WPI; 2002-328082/36
                                                                                                                                                                   31-MAR-1997;
                                                                                                                                                                                                                                                         US6368792-B1
                                                                                                                                      (ABBO ) ABBOTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              289 FVIDISGSMAGR------KLEQTKEALLRILEDMKEEDY----LNFILFSGDV--STWK 335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16 YLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SCVAECA-----QMPPQAA--VIL 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LTDGHNNLGMNPVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EHLVQATPENLQEARTFVKSMEDKG-MTNINDGLLRGISMLNKAREEHRIPERSTSIVIM 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LTDGDANVGESRPEKIQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                       PA, Cohen M,
Roberts-rapp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                906 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                         (first entry
                                                                                                                                      LAB.
                                                                                                                                                                   97US-0828856
                                                                                                                                                                                                98US-0049698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            411
                                                                                         Ļ
                                                                                         Colpitts TL,
,, Russell JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         30;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 92; DB 2;
Pred. No. 0.94;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                         Friedman PN,
, Stroupe SD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 22;
 antigen, useful for or treating gastrointestinal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 906;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28;
                                                                                                        3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       be used to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
```

7;

```
RESULT 4
AAU88029
  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention relates to a purified polynucleotide encoding CS193. The polynucleotide is used for detecting, diagnosing, staging, monitoring, prognosticating, preventing or treating diseases and conditions of the gastrointestinal tract, particularly cancer. The CS193 gene is useful in gene therapy. The present sequence is human CS193 consensus sequence
                       Nucleic acid library comprising genes which are capable of initiation, progression and suppression of an immune response, especially an immun response observed with airway hyper-responsiveness of asthma
Disclosure; Fig 14; 120pp; English
                                                                                    WPI; 2002-241888/29
                                                                                                                                                                   16-AUG-2000; 2000EP-0202867
                                                                                                                                                                                               16-AUG-2001; 2001WO-NL00610
                                                                                                                                                                                                                            21-FEB-2002
                                                                                                                                                                                                                                                                                                              calcium-activated chloride channel
                                                                                                                                                                                                                                                                                                                        autoimmune disease; multiple sclerosis; inflammatory bowel disease; allograft rejection; infectious disease.
                                                                                                                                                                                                                                                                                                                                                   signature sequence; SS; chronic obstructive pulmonary disease; allergic disease; rhinitis; atopic dermatitis; urticaria;
                                                                                                                                                                                                                                                                                                                                                                                airway hyperresponsiveness;
                                                                                                                                                                                                                                                                                                                                                                                              Nucleic acid library; immune response; asthma; COPD,
                                                                                                                                                                                                                                                                                                                                                                                                                          Human calcium-activated chloride channel hCLCA4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       05-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAU88029 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           disorders
                                                                                                                                                                                                                                                      WO200214366-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            polypeptide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 1; Column 87-92; 58pp; English
                                                                                                                                         (UYUT-) RIJKSUNIV UTRECHT.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  459 YVSDEAQNNGLIDAFGALTSGN 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              346 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17 LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CV------DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VLDKSGSMG-----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QLDGSEVLLITDGEDNTASSCIDEVK--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DDAEGKAIIDQIVALNSGS
                                                                                                             Van Bergenhenegouwen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26;
                                                                                                                                                                                                                                                                                                                                                                                bronchoalveolar manifestation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 91.5; Di
Pred. No. 1.1;
                                                                                                             ВJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ÓSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                            Van Oosterhout
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        917;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                        immune
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
```

```
RESULT 5
AAY66749
 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            XAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CC immune response of an individual comprising modulating a gene comprising CC a nucleic acid at least functionally equivalent to a nucleic acid conditionable by a signature sequence (SS) given in the specification such CC as R1-SO-R1-A11, StO1-A10, SvO2-1-C11, StO1-A12, and R1-SO-R1-B7, a CC substance (for use as a medicament) capable of modulating a gene CC comprising a nucleic acid at least functionally equivalent to a nucleic acid dientifiable by SS and the use of a proteinaceous substance are derived CC from a nucleic acid at least functionally equivalent to a nucleic acid dentifiable by SS for the production of an antagonist (for use as a CC identifiable by SS for the production of an antagonist and substance are useful for the treatment of an immune response observed with airway hyperresponsiveness and/or bronchoalveolar manifestations of asthma. The method is useful for modulating the above immune response, where the Gene encodes a gene product capable of modulating the immune response. The substance is useful for treating an immune response, particularly capables of crimitis, atropic dermatitis, urticaria), autoimmune diseases (e.g. contestions disease. The present sequence is a mouse or human diseases. The present sequence is a mouse or human disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         The invention relates to a nucleic acid library comprising genes or their fragments which are capable of modulating an immune response observed with airway hyperresponsiveness and/or bronchoalveolar manifestations of asthma. Also included are a method for modulating immune response of an individual comprising modulating a gene comprising.
02-JUN-1998;
02-JUN-1998;
                                                                                                                                                                      Homo
                                                                                                                                                                                                          pharmaceutical;
                                                                                                                                                                                                                                                                 Membrane-bound
                                                                                                                                                                                                                                                                                                      05-APR-2000
                                                                                                                                                                                                                                                                                                                                           AAY66749;
                                                                                                                                                                                                                                                                                                                                                                           AAY66749 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               multiple sclerosis), inflammatory bowel disea
infectious disease. The present sequence is a
protein encoded by a signature sequence gene
                                                        02-JUN-1999;
                                                                                                                                 WO9963088-A2
                                                                                                                                                                                                                             Membrane-bound
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              346 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17 LVDYSGSMMMKHVAVREPKIBLAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                    sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YVSDEAQNNGLIDAFGALTSGN 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VLDKSGSMG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            917
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                        polypeptide; PRO polypeptide; LDL receptor;
; receptor immunoadhesin; gene mapping.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AA,
98US-0087607
98US-0087609
                                                                                                                                                                                                                                                                 protein PRO1124.
                                                        99WO-US12252
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GKDRLNRMNQAAKHFLLQ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8.2%; Score 91.5; Di
22.8%; Pred. No. 1.1;
tive 26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                               919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ů
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   its homologue/functional
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         917;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  75;
                                                                                                                                                                                                                           TIE ligand
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
```

```
02-UN-1998
03-UN-1998
04-UN-1998
04-UN-1998
04-UN-1998
04-UN-1998
04-UN-1998
04-UN-1998
04-UN-1998
04-UN-1998
05-UN-1998
05-UN-1998
05-UN-1998
05-UN-1998
05-UN-1998
10.JUN-1998;
10.JUN-1998;
10.JUN-1998;
10.JUN-1998;
11.JUN-1998;
11.JUN-1998;
11.JUN-1998;
11.JUN-1998;
11.JUN-1998;
11.JUN-1998;
11.JUN-1998;
16.JUN-1998;
17.JUN-1998;
18.JUN-1998;
19.JUN-1998;
19.JUN-1998;
24.JUN-1998;
24.JUN-1998;
24.JUN-1998;
25.JUN-1998;
25.JU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    10-JUN-1998;
10-JUN-1998;
10-JUN-1998;
10-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10-JUN-
10-JUN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1-1998;
1-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1-1998;
1-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -1998
    98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98005.
98
  3-0087759
3-0088025
3-0088025
3-0088029
3-0088029
3-0088029
3-0088029
3-00880217
3-00882127
3-0088725
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-0088741
3-00
    01-JUL-1998;
01-JUL-1998;
01-JUL-1998;
01-JUL-1998;
02-JUL-1998;
03-JUL-1998;
04-JUL-1998;
04-JU
                                                                                                                                                         Baker
Wood W
                                                                                       WPI; 2000-072883/06
N-PSDB; AAZ65095.
  claim 12; Fig 274; 822pp; English.
                                             Membrane-bound proteins and related
                                                                                                                                                                                                                         (GETH )
                                                                                                                                                       WI,
                                                                                                                                                                                                                         GENENTECH
                                                                                                                                                         Chen
Yuan
                                                                                                                                                                                                                                                                  98US-0091358.
98US-0091478.
98US-0091478.
98US-0091478.
98US-0091519.
98US-0091632.
98US-0091978.
98US-0091978.
98US-0092472.
98US-0092472.
98US-0095325.
98US-0095325.
98US-0095318.
98US-0095318.
98US-0095318.
98US-0095318.
98US-0096124.
98US-0096129.
98US-0096129.
98US-0096129.
98US-0096129.
98US-0096129.
98US-0096129.
98US-0096776.
98US-0096789.
98US-0096789.
98US-0096789.
98US-0096789.
98US-0096791.
98US-0096791.
98US-0096791.
98US-0096791.
98US-0096791.
98US-0096791.
98US-0096950.
98US-0097971.
98US-0097951.
98US-0097951.
98US-0097978.
                                                                                                                                                         Ç, Ç
                                                                                                                                                                                                                           INC
                                                                                                                                                                                  Goddard
                                                                                                                                                                                Þ
                                                                                                                                                                                  Gurney
                                                  nucleotide sequences
                                                                                                                                                                                  ΑL,
                                                                                                                                                                                    Smith
                                                                                                                                                                                  <
                                                                                                                                                                                    Watanabe
                                                      •
                                                                                                                                                                                    CK;
```

```
ARESULT 6
AAU29152
AAU AAU2
AX AAU2
AX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X66666666666668XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match 8.3
Best Local Similarity 22.8
Matches 46; Conservative
01-MAR-2000
02-MAR-2000
03-MAR-2000
03-MAR-2000
16-MAR-2000
14-MAR-2000
15-MAR-2000
21-MAR-2000
21-MAR-2000
21-MAR-2000
21-MAR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       The invention provides membrane-bound PRO polypeptides and polynucleotides encoding them. The PRO sequences of the invention were identified based on extracellular domain homology screening. The PRO sequences have homology with proteins including LDL receptors. TIE ligands and various enzymes. The membrane-bound proteins and receptor molecules are useful as pharmaceutical and diagnostic agents. Receptor immunoadhesins, for instance, can be used as therapeutic agents to block receptor-ligand interactions. The membrane-bound proteins can also be employed for screening of potential peptide or small molecule inhibitors of the relevant receptor/ligand interaction. The PRO encoding sequences are useful as hybridization probes, in chromosome and gene mapping and in the generation of antisense RNA and DNA. PRO nucleic acid sequences will also be useful for the preparation of PRO polypeptides, especially by recombinant techniques.
                                                                                                                                                                                                                                                                                                                                        28-FEB-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO200168848-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human PRO polypeptide sequence #129.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAU29152;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAU29152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRO polypeptide; mammal; tumour; cancer; human; cattle; horse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             310 VLDKSGSMG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17 LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            recombinant techniques.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       cat; pig; goat; rabbit; tumour necrosis factor alpha; TNF-alpha;
d; chondrocyte cell; cell proliferation; cell differentiation; colon;
nal; lung; breast; prostate; rectum; cervix; liver; genetic disorder.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CV------DGIKMHETVINQMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    919 AA;
                       2000WO-USO5841.

2000US-187202P.

2000US-189320P.

2000US-189320P.

2000US-189328P.

2000US-199328P.

2000US-190828P.

2000US-191048P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                        2001WO-US06520
                                                                                                                                                                                                                                                                                 2000WO-US05601.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 91.5; DB
Pred. No. 1.1;
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          919;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
```

```
ঠ
                                                       밁
                                                                                  Ś
                                                                                                                                                                       Sequences AAU29024-AAU29328 represent PRO polypeptides of the invention. CC The PRO polypeptides and their associated nucleic acids can be used to detect the presence of a tumour in a mammal by comparing the level of expression of a PRO polypeptide in a test sample of cells from the animal cervaries in the test sample of cells from the animal cells, whereby a higher level of command. Mammals include dogs, cats, cattle, horses, sheep, pigs, goats and rabbits but are preferably human. The polypeptides can be used to stimulate tumour necrosis factor (TNF) alpha release from human blood, when contacted with it. A specific polypeptide can be used to stimulate time can be used to determine the presence of tumours and also proteins can be used to determine the presence of tumours and also susceptibility to tumour development, particularly adrenal, lung, colon, considerate, rectal, cervical, or liver tumours, in mammalian completes. The oligonucleotide probes specific for the PRO nucleic acids can be used for genetic analysis of individuals with genetic disorders.
                                                                                                                Matches
                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-MAR-2000
29-MAR-2000
29-MAR-2000
30-MAR-2000
01-APR-2000
01-APR-2000
11-APR-2000
11-APR-2000
11-APR-2000
11-APR-2000
11-APR-2000
11-APR-2000
11-APR-2000
11-APR-2000
11-APR-2000
18-APR-2000
25-APR-2000
21-AUG-2000
21-DEC-2000
21-DEC-2000
21-DEC-2000
21-DEC-2000
21-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Novel nucleic acids encoding PRO polypeptides, used to diagnose the presence of tumours, such as prostate and breast tumours, in mammall to screen for modulators of the compounds -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 11; Fig 258; 774pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GETH
                                                        310
                            77
                                                                                     17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
WYHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-602746/68.
DB; AAS46053.
                             CV-----
                                                        VLDKSGSMG-
                                                                                  LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₹,
                                                                                                                46;
                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chen t
                                                                                                                                                                       919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-196690P
2000US-196820P
2000US-19812IP
2000US-198585P
2000US-199550P
2000US-199550P
2000US-199554P
2000US-201516P
2000WO-US13705
2000WO-US14042
2000WO-US14941
2000WO-US15264
2000WO-US15264
2000WO-US15264
2000WO-US15264
2000WO-US15264
2000WO-US15264
2000WO-US15264
2000WO-US15264
2000WO-US15264
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-194449P.
2000US-194647P.
2000US-195975P.
2000US-196000P.
2000US-196187P.
                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                n J, Des.
V, Watanabe
                                                                                                                                                                       À
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Desnoyers L, Goddard stanabe CK, Wood WI,
                                                                                                                             8.2%;
                          -AECAVNTIKSDLEIFGRLTPVG-----DGIKWHETVINQMPP 115
                                                                                                              26;
                                                       GKDRLNRMNQAAKHFLLQ
                                                                                                              Score 91.5; D
Pred. No. 1.1;
%% Mismatches
                                                                                                                                            BG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A, Go
Zhang
                                                                                                                55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Godowski PJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                              Indels
                                                                                                                                           Length
                                                        TVENGSWVG 345
                                                                                                                                           919;
                                                                                                              75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gurney AL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mammals
                                                                                                             Gaps
                                                                                   76
```

and

animal

밁

346

```
RESULT 7
AAB87560
                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
   Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                                                                    01-SEP-1999;
15-SEP-1999;
07-DEC-1999;
09-DEC-1999;
11-JAN-2000;
18-FEB-2000;
                                                                                                                                                                                                                                                                                                                                         18-FEB-2000;
22-FEB-2000;
01-MAR-2000;
03-MAR-2000;
                                                             The present sequence is a human PRO polypeptide (secreted and transmembrane). The PRO protein, and PRO agonists, PRO antagonists or anti-PRO antibodies are useful for preparation of a medicament useful in the treatment of a condition which is responsive to the PRO protein, agonists, antagonists or anti-PRO antibodies. The PRO protein may also be employed as molecular weight markers for protein electrophoresis. The PRO coding sequence has applications in molecular biology, including use as hybridisation probes, and in chromosome and gene mapping.
                                                                                                                                                                                                                                                          Eaton DL,
Grimaldi (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human
                                                                                                                                                                                Eighty four nucleic acids encoding I molecular biology, including use as chromosome and gene mapping. -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-MAY-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB87560;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAB87560 standard; Protein; 919 AA.
                                                                                                                                                               Claim 12;
                                                                                                                                                                                                                                                                                                                      25-APR-2000;
22-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              24-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   08-MAR-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human;
                                             Sequence
                                                                                                                                                                                                                                                                                         (GETH ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YVSDEAQNNGLÍDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                                                                                                                                                                                                      2001-183260/18.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRO1124.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRO protein; mapping
cn 8.2%;
l Similarity 22.8%;
46; Conservative 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                          ર
દ
                                                                                                                                                               Fig
                                                                                                                                                                                                                                                          Filvaroff
J, Gurney
                                             919
                                                                                                                                                                                                                                                                                                           2000US-0175481.
2000WO-US04341.
2000WO-US04342.
2000WO-US04414.
2000WO-US05601.
2000US-0187202.
2000US-019397.
2000US-019397.
2000US-0209832.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000WO-US23328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                             70; 278pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                          99US-0169495.
99US-0170262.
                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                99WO-US21090
                                                                                                                                                                                                                                                                                                                                                                                                                                         99WO-US20111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entry)
                                                                                                                                                                                                                                                          ₽.E
                                                                                                                                                                                                                                                          Gerritsen
Watanabe
    26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174
   Score 91.5; DB
Pred. No. 1.1;
26; Mismatches
                                                                                                                                                                                             PRO polypeptides, usef:
s hybridization probes,
                                                                                                                                                                                                                                                          었
                                                                                                                                                                                                                                                           Goddard A, Wood WI;
                        DB
                        22;
    55;
                       Length
    Indels
                                                                                                                                                                                              , useful in cobes, and i
                                                                                                                                                                                                                                                                     Godowski
                         919;
    75;
                                                                                                                                                                                                                                                                     PJ;
                                                                                                                                                                                                ij
    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155
    8
```

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
               Ashkena.
Perrara N, .
Primaldi CJ, Gu..
Stewart T
                                                                                                                       30-NOV-1999;
01-DEC-1999;
16-DEC-1999;
20-DEC-1999;
05-JAN-2000;
06-JAN-2000;
11-FEB-2000;
11-FEB-2000;
24-FEB-2000;
24-FEB-2000;
                                                                                                                                                                                                                                                                                                     02-JUN-1999;
23-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                        Homo
                                                                                                                                                                                                                                                                                                                                                                                                                   Human; secreted and transmembrane protein; PRO; cytostatic;
cell death; cancer; chromosomal mapping; gene mapping; tissue typing;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Human PRO1124 (UNQ562) protein sequence SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAB65272 standard; Protein; 919
                                                                                                                                                                                                                                     15-SEP-1999;
                                                                                                                                                                                                                                                       28-JUL-1999;
17-AUG-1999;
                                                                                                                                                                                                                                                                                             07-JUL-1999;
                                                                                                                                                                                                                                                                                                                                 30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                    07-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                      WO200073454-A1
                                                                                                                                                                                                                                                                                                                                                                                                           diagnostic assay.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB65272;
                                                                                                                                                                                                                              08-OCT-1999;
                                                                                                                                                                                                                                                                          26-JUL-1999;
                                                                                                                                                                                                                                                                                   20-JUL-1999
                                                                           (GETH ) GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VLDKSGSMG------GKDRLNRMNQAAKHFLLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSEA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---DDAEGKAIIDQIVALNSGS
          a N, Fong S, u.
CJ, Gurney AL, ...
rt TA, Tumas D
                                                                                           99WO-US28301
99WO-US30995
99WO-US30991
2000WO-US00219
2000WO-US00376
2000WO-US04341
2000WO-US04414
2000WO-US04414
2000WO-US05804
2000WO-US05804
2000WO-US05804
2000WO-US05804
2000WO-US05804
2000WO-US05804
                                                                                                                                                                                                                                                                                                                                  2000WO-US08439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first
                                                                                                                                                                                                                                                                           99US-
                                                                                                                                                                                                                      99WO-US28313
                                                                                                                                                                                                                             99WO-US21547
99US-0158663
                                                                                                                                                                                                                                                 99WO-US21090
                                                                                                                                                                                                                                                        99US-0146222
99US-0149396
                                                                                                                                                                                                                                                                                      99US-0144758
                                                                                                                                                                                                                                                                                                                99WO-US12252
                                                                                                                                                                                                                                                                           -0145698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 entry)
                             CKP, Botstein D, Desnoyers L, Eaton
Gerber H, Gerritsen ME, Goddard A,
AL, Kljavin IJ, Napier MA, Pan J,
Tumas D, Watanabe CK, Williams PM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                NO:379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----TVENGSWVG
                                                         PL;
                                                 Godowski
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                 면,
```

WPI; 2001-032160/04

Paoni Wood

WH.

```
RESULT 9
ABB11973
PN OS XXX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local 9
                                                                                                Human; cytokine; cell proliferation; cell differentiation; growth factor; haematopoiesis regulation; tissue growth; immunomodulator; activin; inhibin; chemotaxis; chemokinesis; thrombolygis; oncogenesis; proliferation; metastasis; cancer; tumour; haematopoietic disorder; myeloid cell disorder; lymphoid cell disorder; arthritis; chronic inflammatory condition; proliferative retinopathy; atherosclerosis; coronary heart disease; arterial ischaemia; bone disorder; osteoporosis; vascular growth disorder; tissue regeneration; wound healing; infection; immune disorder; cell culture; drug screening; gene therapy; antiinflammatory; antiasthmatic; antiarthritic; haemostatic; antiarteriosclerotic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention describes human secreted and transmembrane PRO proteins. The PRO proteins have cytostatic activity. The PRO proteins can be used for targeted delivery of bioactive molecules, such as toxins, radiolabels or antibodies, that cause cell death. PRO nucleotide sequences, and their fragments, can be used as hybridisation probes, in chromosomal and gene mapping, and in the generation of anti-sense RNA and DNA. They may also be used to produce transgenic animals which are used to develop and screen therapeutically useful reagents. The PRO nucleotide and protein sequence can be used for tissue typing and in treating cancer. Anti-PRO antibodies can be used in diagnostic assays. AAP44270 to AAF4470 represent PCR primers and hybridisation probes used in the isolation of human PRO sequences. AAP44089 to AAF44269 and AAB65194 to AAB65300 represent human PRO polynucleotide and protein sequences given in the exemplification of the present invention.
                                                                                        cytostatic;
                                                                                                                                                                                                                                                                                                                                         Human membrane-bound protein homologue, SEQ ID NO:2343.
                                                                                                                                                                                                                                                                                                                                                                               11-JAN-2002 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABB11973 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Claim 12; Fig 274; 935pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRO polynucleotides used bioactive molecules such
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB; AAF44241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         310 VLDKSGSMG------GKDRLNRMNQAAKHFLLQ-----TVENGSWVG 345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17 LVDYSGSMYMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ocal Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YVSDEAQNNGLIDAFGALTSGN 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ---DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CV------DGIKMHETVINOMPP 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       46;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleotides used to produce polypeptides used to target molecules such as toxins, radiolabels or antibodies, cells, to cause targeted cell death -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  919 AA;
                                                                                        osteopathic; vasotropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                             peptide; 931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 91.5; DB
Pred. No. 1.1;
26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22;
                                                                                        virucide; antibacterial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           919;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     75;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
```

```
밁
                                   Ś
                                                                          В
                                                                                                                                                                                                                                      Sequences ABB10981-ABB12330 represent 1350 novel human polypeptides, and convention also relates to vectors and recombinant host cells comprising a connucleotide of the invention, methods of producing the movel polypeptides, antibodies against the polypeptides, methods of detecting the nucleotides or polypeptides in a sample, and methods of identifying compounds which to hind to polypeptides of the invention. Although novel, many of the polypeptides of the invention have homology to known proteins, thereby convential therapeutic applications. The polypeptides of the invention have homology to known proteins, thereby convential therapeutic applications. The polypeptides of the invention may convent and hence convention are civities, including cytokine, cell proliferation or cell differentiation activities, including cytokine, cell proliferation or cell conditions. The polypeptides of the invention may conventially in activity; itsus growth factor activity; concentration or cell proliferation or cell involved in oncogenesis, cancer cell proliferation or metastasis.

Considered in oncogenesis, cancer cell proliferation or metastasis.

Conditions, e.g., by protein or gene therapy. Such conditions include conditions, e.g., by protein or gene therapy. Such conditions and nucleotides of conditions, e.g., by protein or gene therapy. Such conditions and abnormal conditions, e.g., by protein or gene therapy. Such condition and cell cancers, haematopoietic disorders (e.g., myeloid or lymphoid cell conditions in clumphondulatory activities may be used to promote wound the provides inflammatory conditions to immune disorders.

Conditions and fungal infections and ulcers, while those with conditions in addition to immune disorders.

Conditions and fungal infections in addition to immune disorders to promote cell growth. Polypeptides in the treatment of viral, bacterial and fungal infections in addition to immune disorders.

Conditions are the conditions of the polypeptides and nucleotides of that can be used to one condition
                                                                                                               S
                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human proteins and DNA encoding sequences useful for preventing, treating or ameliorating a medical condition in a mammalian subject e.g. arthritis and cancer -
                                                                                                                                                                                                                                      Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 20; Page 289; 1963pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2001-457740/49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          03-FEB-2000;
27-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    05-FEB-2001; 2001WO-US03800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           09-AUG-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (HYSE-)
358 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----
                                       77
                                                                                                               17 LVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YT,
                                 CV-----DGIKMHETVINQMPP 115
                                                                                                                                                     ch 8.2%; Score 91.5; D
1 Similarity 22.8%; Pred. No. 1.1;
46; Conservative 26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Liu C,
                                                                                                                                                                                                                                      931 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000US-0496914.
2000US-0560875.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drmanac
                                                                                                                                                                                            DB 22;
PLGGTSICSGIKYAFQVIGELHS
                                                                                                                                                       55;
                                                                                                                                                                                          Length 931;
                                                                                                                                                       Indels
                                                                          -TVENGSWVG
                                                                                                                                                     75;
                                                                                                                                                     Gaps
                                                                        357
```

```
밁
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                       considerable to the treatment, prevention and their associated DNA sequences are used in the treatment, prevention and diagnosis of medical conditions caused by P. acnes. The disorders include SAPHO syndrome (synovitis, acne, pustulosis, hypertosis and osteomyelitis), weitis and endophthalmitis. P. acnes is also involved in infections of bone, joints and the central CC nervous system, however it is particularly involved in the inflammatory CC lesions associated with acne vulgaris. A method for detecting the CC presence or absence of P. acnes in a patient comprises contacting a companie with a binding agent that binds to the proteins of the invention and determining the amount of bound protein in the sample. The CC specific for P. acnes proteins. These antibodies can be used to downregulate expression and activity of P. acnes populates and companies for determining P. acnes proteins. The antibodies may also be used as diagnostic agents for determining P. acnes presence, for example, by cenzyme linked immunosorbent assay (ELISA).

CC specification, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-APR-2000;
02-JUN-2000;
                                                                                                                                                                                                                                                                                                                                    Sequences AAU39105-AAU68017 represent Propionibacterium acnes
                                                                                                                                                                                                                                                                                                                                                                                                              Propionibacterium acnes polypeptides and nucleic acids useful for vaccinating against and diagnosing infections, especially useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Propionibacterium acnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    dermatological;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SAPHO syndrome; synovitis; acne;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAU52280
                                                                                                                                                                                                                                                                                                                                                                    Example 1; SEQ ID No 13475; 1069pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                L'maisonneuve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Skeiky YAW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-APR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    uveitis; endophthalmitis; bone; joint; central nervous system; I inflammatory lesion; acne vulgaris; enzyme linked immunosorbent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Propionibacterium acnes immunogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (CORI-) CORIXA CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YVSDEAQNNGLIDAFGALTSGN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-616774/71.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               QLDGSEVLLITDGEDNTASSCIDEVK---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DDAEGKAIIDQIVALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-199047P.
2000US-208841P.
2000US-216747P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001WO-US12865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Persing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                  vulgaris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       osteopathic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mitcham, Jen S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     neuroprotectant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pustulosis; hypertosis; osteomyelitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JL, Wang SS,
, Carter D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OSGAIVHFIALGRAADEAVIEMSKITGGSHF 470
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     #13176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bhatia
                                              part of the printed directly from WIPO
                                                                                                                                                                                                                                                                                                                                                                                                                                   for
```

Sequence

ftp.wipo.int/pub/published\_pct\_sequences

B12. The genome sequence and proteins encoded by it are also useful for selecting compounds that regulate gene expression and cell replication and modulate L. monocytogenes-related diseases. In addition, the genome sequence and proteins encoded by it are useful in pharmaceutical and

the genome

by L

for the

```
ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                      monocytogenes EGD-e (see ABA03041). The genome sequence and fragments of it are useful for selecting probes and primers for detecting genes in L. monocytogenes and related organisms, and for studying genetic polymorphisms and other genomes. The present sequence is a protein encoded by the genome sequence of the present invention. Proteins expressed from the genome sequence are useful for raising specific antibodies, identification of L. monocytogenes and related organisms, and for blosynthesis and biodegradation, especially biosynthesis of Vitamin for blosynthesis and biodegradation, especially biosynthesis of Vitamin
                                                                                                                                                                                                                                                                                 Genomic sequence for Listeria monocytogenes, useful e.g. and prevention of Listeria and related bacterial infecti
                                                                                                                                                                                                                                                                                                                                WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Listeria monocytogenes protein #962.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABB48258;
                                                                                                                                                                                                                                                                                                                                                                            Buchrieser C, Frangeul L, Couve E, Rusniok C, Fsihi H, Dehoux P, Dussurget O, Chetouani F, Nedjari H, Glaser P, Kunst F, Cossart Daniels J, Goebel W, Kreft J, Kuhn M, Ng E, Vazquez-Boland JA; Dominguez-Bernal G, Garrido-Garcia P, Tierrez-Martinez A, Amend A; Chakraborty T, Domann E, Hain T, Berche P, Charbit A, Durant L; Perez-Diaz J, Baquero F, Garcia Del Portillo F, Gomez-Lopez N; Perez-Diaz J, Baquero F, Garcia Del Portillo F, Gomez-Lopez N; Hauf J; Maduenio E, De Pablos B, Wehland J, Kaerst U, Entian K, Hauf J;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-APR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Listeria monocytogenes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Antibacterial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABB48258 standard; Protein; 1091 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-OCT-2001
                                                                                                                                                                                                                                    Claim 6; SEQ ID No 963; 192pp; French.
                                                                                                                                                                                                                                                                     related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (INSP ) INST PASTEUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 76
                                                                                                                                                                                                     present invention relates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TNVGRPSLEAAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VDYSGSMMMKHVAVREP-KIELAKEAILKINAAMPKMSYQGGLYTFAPYS-VIIPQGSWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NNLGMNPVEEVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PTTDRAAVSTAITNLQVLPS-TAIGEGIYSSLNALKLVPDDPKHPGQKPPAAIVLLSDGA 259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IDVSRSMVATDV---EPSRLSAAKTAAKDFLGDLPP-RFNVSLVKFAASAQVVVP-----
                                                                                                                                                                                                                                                                                                                                2002-010914/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINOMP-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                  polypeptides
                                                                                                                                                                                                                                                                                                                                                            Voss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001WO-FR01118

    gene therapy; vaccine; biosynthesis;
bacterial infection; disease.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000FR-0004629
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8.1%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 90.5; DB Pred. No. 0.37;
                                                                                                                                                                                                     to the genome sequence of Listeria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                biodegradation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PQAAVILLTDGH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   200
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ۳,
                                                                                                and
                                                                                                                                                                           Ľ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7;
```

```
RESULT 12
ABB09706
ID ABB09
XX ABB09706
XX ABB09706
XX Sequi
XX MAY-
XW MY-
XW MY-
XW OX99-
XW ABB09
XX MAY-
XW OX99-
XW MIR;
XW OX99-
XW ABB09
XX Int(
XX OX99-
XX O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ន្តន្តន្តន្តន
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 56
                                                                                                                                               Rat or human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           monocytogenes and related organisms.

Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electronic format directly from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MLR; autoimmune disease; allergic disease; organ rejection; organ transplantation; rheumatism; psoriasis; bronchial ast oligantic communities; allergic dermatitis; pollinosis; H4P heaplergic rhinitis; allergic dermatitis; pollinosis;
                                                                                                                                                                                                                                N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                       09-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence of H4P heavy chain of inter-alpha-inhibitor protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                    Disclosure;
                                                                                                                                                                                                                                                       WPI; 2002-217191/27.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-AUG-2001; 2001WO-JP06620.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rattus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABB09706 standard;
                                                                                                                               reaction,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WO200212495-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MAY-1; blood transfusion; immunosuppressive; mixed lymphocyte reaction;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       inter-alpha-inhibitor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            £68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   743
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQ-GGLYTFAPY-----SVIIPQ 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LYTEEVVVLRGVNFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ID-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Y-QLGQNVGNDLKSY----DNLTFRVYPSGDSEYSFYDDVNGGEMRDISVSEDFANEKVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HNNLGMNPVEEVKSIYQTNPNVCFHV-----VSFADDAEG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GEW----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KDAKQAI VLNGVNHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VDLPAMADETTMQVFSTEPTSVTIDGADVAKADTLDAFNEATTGYYYDTVQNLTYVKAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSWNSCVAECAVNTIKSDLEIF-GRLTPVGDGIKMHETVINQMP--PQAAVIL---LTDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NGKSMMRQMAMDYPE-----DVNARDLDEQYMFGDDLLVAPIVQEGQTEKEVYLPE 793
                                                                                                                     human protein MAY-1 induced by homogeneous blood transfusion and ting immunosuppressive activity in a homogeneous mixed lymphocyte on, for providing drug compositions to treat e.g. autoimmune
                                                                                                                                                                                                                                                                                                      H, Tanaka H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                ABL41969
                                                                                                                                                                                                                                                                                                                                                        MARUHO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1091 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8.0%;
llarity 22.0%;
Conservative 3
                                                 Page 43-47; 85pp;
                                                                                                                                                                                                                                                                                                                                                                                                       2000JP-0241169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QIVALNSGSVLVDGLQLLQ-----NPAVCQEFVNSV----FCQEQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----VDÍWNGGVHPGGETÍSYYADV-DTLPVFAKÁGAÍIPMNMTDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              967
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                         Kitoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 90; DB 2
Pred. No. 2.1;
37; Mismatches
                                                                                                                                                                                                                                                                                                         ĸ
                                                    Japanese.
                                                                                                                                                                                                                                                                                                      Fujimura
                                                                                                                                                                                                                                                                                                    ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    74;
                                                                                                                                                                                                                                                                                                         Kobayashi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 1091;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H4P heavy
                                                                                                                                                                                                                                                                                                      Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              asthma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -KAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    chain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15;
```

present

ведчепсе

encodes

the rat H4P

heavy chain

of.

reaction, diseases

Rat or human protein MAY-1 induced by homogeneous blood transfusion and exhibiting immunosuppressive activity in a homogeneous mixed lymphocyte reaction, for providing drug compositions to treat e.g. autoimmune

Claim 3; Page 49-53;

85pp; Japanese

```
RESULT 13
ABB09707
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          inter-alpha-inhibitor protein. The specification describes MAY-1 protein, which is induced by homogeneous blood transfusion. WAY-1 exhibits an immunosuppressive activity in a homogeneous mixed lymphocyte reaction (MLR). The MAY-1 protein can formulated into drug compositions for the prevention or treatment of autoimmune diseases, allergic diseases, or rejection reaction during organ transplantation, e.g. rheumatism, psoriasis, bronchial asthma, allergic rhinitis, allergic dermatitis and pollinosis.
                                                                                                                                                                                                                                                                                                                                                  MLR; autoimmune disease; allergic disease; organ rejection; organ transplantation; rheumatism; psoriasis; bronchial ast allergic rhinitis; allergic dermatitis; pollinosis; H4P hea
                                                                                                                                                         09-AUG-2000; 2000JP-0241169
                                                                                                                                                                               01-AUG-2001; 2001WO-JP06620
                                                                                                                                                                                                      14-FEB-2002
                                                                                                                                                                                                                            WO200212495-A1
                                                                                                                                                                                                                                                             Misc-difference
                                                                                                                                                                                                                                                                                                                    Rattus
                                                                                                                                                                                                                                                                                                                                                                                       MAY-1;
                                                                                                                                                                                                                                                                                                                                                                                                            Sequence of H4P heavy chain of inter-alpha-inhibitor protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                   11-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ABB09707 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                             Uchida H,
                                                                                                                                    (MARU-)
                                                                                                                                                                                                                                                                                   Misc-difference
                                                                                                                                                                                                                                                                                                                                        inter-alpha-inhibitor
                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABB09707;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       379
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        73
                                                                            2002-217191/27.
DB; ABL41970.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IILLTDGEPTVG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VILLIDGHNNLGMNPVEEVKSIYQTNPNV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QWEQLLVQATEENLNRAVDYASKI-PAQGGTNINKAVLSAVELLDKSNQAELLPSKSVSL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVI-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FVIDKSGSMAGK-----KIQQTREALIKI---LKDLSTQD-----QFNIIVFSGEAN 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   YLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQG----
                                                                                                                                                                                                                                                                                                                    ф
                                                                                                                                                                                                                                                                                                                                                                                      blood transfusion; immunosuppressive; mixed lymphocyte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          l Similarity
33; Conserv
                                                                                                                                    MARUHO
                                                                                                             Tanaka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7.8%;
nilarity 22.1%;
Conservative 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       932 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                   (first
                                                                                                                                    즛
                                                                                                                                                                                                                                                            /note=
                                                                                                                                                                                                                                                                                   Location/Qualifiers
                                                                                                                                                                                                                                                   note=
                                                                                                            Ή
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                             Kitoh
                                                                                                                                                                                                                                                                      "Leu
                                                                                                                                                                                                                                                 "Tyr encoded by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 87.5; DB
Pred. No. 3.1;
31; Mismatches
                                                                                                                                                                                                                                                                       encoded
                                                                                                             ĸ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ETNPKI 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₿
                                                                                                            Fujimura
                                                                                                                                                                                                                                                                       γģ
                                                                                                                                                                                                                                                 ACT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멂
                                                                                                             Kobayashi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -NQ---MPPQAA--
                                                                                                                                                                                                                                                                                                                                                     heavy c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           45;
                                                                                                                                                                                                                                                                                                                                                                                       reaction;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72
```

```
RESULT 14
AABO1830
ID AABO18
XX AABO1
XX DT 11-SE
XX MATU1
XX Haem
XX Haem
XX Haem
XX Hoose
XX Hoose
XX (COND
X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              $9999999988
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present sequence encodes the rat H4P heavy chain of inter-alpha-inhibitor protein. The specification describes MAY-1 protein, which is induced by homogeneous blood transfusion. MAY-1 exhibits an immunosuppressive activity in a homogeneous mixed lymphocyte reaction (MLR). The MAY-1 protein can formulated into drug compositions for the prevention or treatment of autoimmune diseases, allergic diseases, or rejection reaction during organ transplantation, allergic memoriasis, promises, bronchial asthma, allergic rhinitis, e.g., recommendation, provides to the prevention of the protein during organ transplantation, allergic memoriasis, promises bronchial asthma, allergic rhinitis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mature HMW protein; hmw gene; hmwAl; hmwA2; high molecular weight; non-typeable Haemophilus influenzae; NTH; non-encapsulated; recombinant production; Escherichia coli; antibacterial; vaccine; human disease; otitis media; epiglottitis; pneumonia; tracheobronc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                e.g. rheumatism,
allergic dermati
                                                                                Nucleic acid molecule for producing recombinant high molecular weight proteins of Haemophilus which are used as a vaccine to provide
                                                                                                                                                                                                                                                                                                                                                    07-OCT-1998;
08-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                     07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAB01830
  Claim 8;
                                                    protection against
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13-APR-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           WO200020609-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           detection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB01830;
                                                                                                                                                                                                                                              Loosmore
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      119
                                                                                                                                                                                                                                                                                                   (CONN-) CONNAUGHT LAB LTD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        YLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VILLTDGHNNLGMNPVEEVKSIYQTNPNV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FVIDKSGSMAGK-----KIQQTREALIKI---LKDLSTQD-----QFNIIVFSGEAN 320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QWEQLLVQATEENLNRAVDYASKI-PAQGGTNINKAVLSAVELLDKSNQAELLPSKSVSL
                                                                                                                                                                                      2000-303789/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IILLTDGEPTVG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVI-----NQ---MPPQAA--
                                                                                                                                                                AAA52180.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
Fig
                                                                                                                                                                                                                                           SM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   dermatitis and pollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           diagnosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              933 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       influenzae strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
  20A-R; 307pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      strain
                                                                                                                                                                                                                                        Yang Y,
                                                                                                                                                                                                                                                                                                                                                  98US-0167568
98US-0206942
                                                                                                                                                                                                                                                                                                                                                                                                                                     99WO-CA00938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers 307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note=
                                                    Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Encoded by GG"
                                                                                                                                                                                                                                              Klein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mature full-length HMW1A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -ETNPKI 397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 87.5; D. Pred. No. 3.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ሯ
                                                       induced diseases in humans
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ā
                                                                             as a vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    pneumonia; tracheobronchitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         23;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQ ID NO:37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   X65555555555555555555555555555555555
                                                                                                                          á
                                                                                                                                                                         밁
                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                        Ś
                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CC influenzae high molecular weight (HWW) proteins in Escherichia coli. The CC influenzae high molecular weight (HWW) proteins in Escherichia coli. The CC expression construct used to effect recombinant expression comprises a CC promoter functional in E. coli (e.g., the T7 promoter) operably linked CC to a modified hmwABC operon from a non-typeable (non-encappulated) H. CC influenzae (NTHi). Most HMW-expressing NTHi strains contain two hmw gene CC clusters termed hmwABC and hmwABC. Each hmwABC operon comprises hmwA. CC hmwB and hmwC genes. The hmwA genes encode the structural HMWA proteins CC and the hmwB genes encode accessory proteins which are cresponsible for post-translational processing and secretion of the HMWA creation. The modified hmwABC operon used in the expression construct of the invention contains an A gene modified such that it encodes only the creations. The invention also discloses hmwA genes (AAAS2175-A52198) and HMWA proteins (AAB01824-B01849) from the non-typeable H. influenzae creations of the production of recombinant H. influenzae creations which can be used as vaccines to mediate a humoral or cell-mediated immune response to provide protection against diseases in CC pneumonia and tracheobronchitia). The HMW proteins are also useful as creating and tracheobronchitia). The humbrodies against Haemophilus, CC HMW proteins can be used to isolate and clone hmw genes from other constructs and constructs of Haemophilus via hybridiaation reactions. The constructs of Haemophilus via hybridiaation reactions. The
                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention relates to the recombinant production of Haemophilus
548
                                                                                                                               158
                                                                                                                                                                         447
                                                                                                                                                                                                                 103
                                                                                                                                                                                                                                                            389
                                                                                                                                                                                                                                                                                                                                              329
                                            186
                                                                                       490
                                                                                                                                                                                                                                                                                                    51
                                                                                                                                                                                                                                                                                                                                                                                      11 VESYNYLVDYSGSMMKHVAVREPKIELAKEAIL------KINAAM 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
  GNISQKEGNLTISSDKVNITERITIKAGVN
                                                                                                                                                                                                                                                                                                    PKMSYQGGLYTFA-----PYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDG 102
                                                                                                                                                                                                                                                                                                                                              IESQNFSASGGSSLKFKSEGSTHAAFTIKNDLILNATGGNISLNQVAGIDSNLKKSLIAN 388
                                        PAVCOEFVNSVFCQEQILVTEEVVVLRGVN 215
                                                                                                                            ---AEGKAIIDQIVALNSGSVLV----
                                                                                                                                                                                                               IKMHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADD-----
                                                                                                                                                                                                                                                         KNITFEGGNITLAADKKPIEIKGNITVKEGA-NVTLRSANYGNDKSALSIRGNVTNKGN-
                                                                                    ISIAKGGAIFKDIE--NTGSLNITTKSDSNHHTIIKGNITNRKGDLNITNNGDNTEIQIG
                                                                                                                                                                                                                                                                                                                                                                                                                                 48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sequence represents a
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1222 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                       -----LTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGLFDNQGKSN 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                     7.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                   38;
                                                                                                                                                                                                                                                                                                                                                                                                                               Score 86; DB Pred. No. 6.8; 38; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mature HMWA
    577
                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein from a non-typeable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21;
                                                                                                                                                                                                                                                                                                                                                                                                                                   98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1222;
                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                   DGLQLLQN 185
                                                                                                                                                                                                                                                                                                                                                                                                                                   86;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                      157
                                                                                                                                                                                                                                                                                                                                                                                                                                   7;
```

```
AAB01828
                                                                                                                                                                                                                             RESULT
                                                              non-typeable Haemophilus influenzae; NTHi; non-encapsulated;
recombinant production; Escherichia coli; antibacterial; vaccine;
                                                                                                                  Haemophilus
                                                                                                                                            11-SEP-2000
                                                                                                                                                                                                   AAB01828
           Haemophilus influenzae
                                     detection; diagnosis.
                                                                                       HMW protein;
                                                recombinant production; Esche human disease; otitis media;
                                                                                                                                                                                                   standard;
                                                                                                                   influenzae strain K1 full-length HMW1A protein,
                                                                                       hmw gene; hmwA1; hmwA2; high molecular weight;
                                                                                                                                            (first entry)
                                                                                                                                                                                                    Protein;
            strain Kl
                                                  epiglottitis;
                                                   pneumonia; tracheobronchitis;
```

OBS

ID NO:34

```
श
                                                                    밁
                                                                                                        ঠ
                                                                                                                                                    밁
                                                                                                                                                                                             á
                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                  The invention relates to the recombinant production of Haemophilus (influenzae high molecular weight (HMW) proteins in Escherichia coli. The expression construct used to effect recombinant expression comprises a CC promoter functional in E. coli (e.g., the TT) promoter) operably linked to a modified hmwABC operon from a non-typeable (non-encapsulated) H. CC influenzae (NTHi). Most HMW-expressing NTHi strains contain two hmw gene clusters termed hmwlABC and hmw2ABC. Each hmwBBC operon comprises hmwA, the hmwB and hmwC genes encode accessory proteins which are considered the hmwB and hmwC genes encode accessory proteins which are constituted the modified hmwABC. Each hmwBBC operon comprises hmwA, the invention also discloses hmwA genes construct of the invention contains an A gene modified such that it encodes only the construct the invention also discloses hmwA genes (AAA52175-A52198) and the HMWA proteins (AAAB01824-B01849) from the non-typeable H. influenzae strains Joyc, KI, K21, LCDC2, PMH1, 15 and 12. The nucleic acids and corteins which can be used as vaccines to mediate a humoral or cell-mediated immune response to provide protection against diseases in humans caused by H. influenzae (e.g., otitis media, epiglottitis, and tracheobronchitis). The HMW proteins are also useful as cell-mediated and tracheobronchitis). The HMW proteins are also useful as an immunoassays for detecting antibodies against Haemophilus, the proteins can be used to isolate and clone hmw genes from other constructions of Haemophilus via hybridisation reactions. The present sequence represents an HMWA protein from a non-typeable strain of the present sequence represents an HMWA protein from a non-typeable strain of the present sequence represents an HMWA protein from a non-typeable strain of
                                                                                                                                                                                                                                                                                                                         Query Match 7.7%; Score 86; DB 21; Length 1228; Best Local Similarity 17.8%; Pred. No. 6.8; Matches 48; Conservative 38; Mismatches 98; Indels 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Nucleic acid molecule for producing recombinant high molecular weight proteins of Haemophilus which are used as a vaccine to provide protection against Haemophilus induced diseases in humans -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2000-303789/26.
N-PSDB; AAA52179.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        07-OCT-1998;
08-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 12; Fig 20A-R; 307pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13-APR-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Misc-difference
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Loosmore SM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200020609-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (CONN-) CONNAUGHT LAB LTD.
158 ---AEGKAIIDQIVALNSGSVLV---
                                                                                                                                                                                                                                         335
                                                                                                        103 IKMHETVINOMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADD-----
                                                                                                                                                                                             51 PKMSYQGGLYTFA-----PYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDG 102
                                                                                                                                                                                                                                                                                 11 VESYNYLVDYSGSMMMKHVAVREPKIELAKEAIL-------KINAAM 50
                                                                KNITFEGGNITLAADKKPIEIKGNITVKEGA-NVTLRSANYGNDKSALSIRGNVTNKGN- 452
                                                                                                                                                                                                                                       IESONFSASGGSSLKFKSEGSTHAAFTIKNDLILNATGGNISLNOVAGIDSNLKKSLIAN 394
                                                                                                                                                                                                                                                                                                                                                                                                              1228 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yang Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98US-0167568.
98US-0206942.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99WO-CA00938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note= "Encoded by GG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Klein MH;
                      -DGLQLLQN 185
                                                                                                                                                                                                                                                                                                                         66;
                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                        157
                                                                                                                                                                                                                                                                                                                         7;
```

```
Db 496 ISIAKGGAIFKDIE--NTGSLNITTKSDSNHHTIIKGNITNRKGDLNITNNGDNTEIQIG 553
Qy 186 PAVCQEFVNSVFCQEQILYTEEVVVLRGVN 215
```

Db 554 GNISQKEGNLTISSDKVNITERITIKAGVN 583

Search completed: April 9, 2003, 14:30:08 Job time : 79 secs

•		4 <sub>7</sub>
•		
		•
	4,	
		S
		•
		•
	e in the second second	*
		e e e e e e e e e e e e e e e e e e e
		•
ž.		
in the second of		
	· .	

OM protein -

Sequence Patent No.

2, Appli 43, Appl 43, Appl 5424399

Sequence

3, Appli
42, Appli

```
Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 su
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB seq length:
DB seq length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No. is the number of results predicted by chance to have a greater than or equal to the score of the result being printed, derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2
1119
1 AEVTASCTKRVESYNYLVDY.....QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
Gapop 10.0 , Gapext 0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          April 9, 2003, 14:29:23 ; Search time 28 Seconds
(without alignments)
229.078 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  262574 seqs, 29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Issued
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /cgn2_6/ptodata/1/iaa/5A_COMB.pep:*
/cgn2_6/ptodata/1/iaa/5B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/6B_COMB.pep:*
/cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*
/cgn2_6/ptodata/1/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000000000
                                   2183
2183
317
317
903
141
141
141
914
320
320
320
                                                                                                                                                                                                                       885
917
915
1222
1228
1228
391
391
1095
1101
141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patents_AA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.4 p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                               멂
   US-09-074-579-5
US-09-038-7714-5
US-09-049-608-41
US-09-206-942-37
US-09-206-942-37
US-09-206-942-37
US-08-969-683A-11
US-08-969-683A-11
US-09-206-942-43
US-09-206-942-43
US-09-206-942-43
US-09-206-942-43
US-08-470-179-17
US-08-470-179-17
US-08-18-70-179-18
US-08-18-70-179-18
US-08-18-70-179-18
US-08-18-70-179-20
US-08-18-70-179-20
US-08-480-183-3
US-08-688-988-35
US-08-688-988-35
US-08-485-284A-5
US-08-485-284A-5
US-08-481-435-6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           model
Sequence 5, Appli
Sequence 41, Appl
Sequence 35, Appl
Sequence 37, Appl
Sequence 31, Appl
Sequence 11, Appl
Sequence 11, Appl
Sequence 17, Appli
Sequence 43, Appli
Sequence 19, Appli
Sequence 19, Appli
Sequence 18, Appli
Sequence 20, Appli
Sequence 21, Appli
Sequence 21, Appli
Sequence 22, Appli
Sequence 23, Appli
Sequence 24, Appli
Sequence 24, Appli
Sequence 25, Appli
Sequence 26, Appli
Sequence 27, Appli
Sequence 28, Appli
Sequence 29, Appli
Sequence 29, Appli
Sequence 21, Appli
Sequence 21, Appli
Sequence 22, Appli
Sequence 23, Appli
Sequence 24, Appli
Sequence 26, Appli
Sequence 27, Appli
Sequence 27, Appli
Sequence 28, Appli
Sequence 29, Appli
Sequence 29, Appli
                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
                                ; CLONE: gi288563
US-09-074-579-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 1
US-09-074-579-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 5, Application US/09074579
Patent No. 6001596
GENERAL INFORMATION:
APPLICANT: Hillman, Jennifer L.
APPLICANT: Guegler, Karl J.
APPLICANT: Patterson, Chandra
TITLE OF INVENTION: GROWTH-ASSOCIATED TRYPSIN-TYPE
TITLE OF INVENTION: INHIBITOR HEAVY CHAIN PRECURSOR
   Query Match
                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
ADDRESSEE: Incyte Pharmaceuticals, I
STREET: 3174 Porter Drive
CITY: Palo Alto
STATE: CA
COUNTRY: USA
ZIP: 94304
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: Word Perfect 6.1/MS-DOS 6.
SOFTWARE: WORD PATA:
APPLICATION NUMBER: US/09/074,579
FILING DATE: HEREWITH
CLASSIFICATION:
PRIOR APPLICATION UMBER:
PRIOR APPLICATION NUMBER:
                                                                                                                       INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 885 amino acid
TYPE: amino acid
                                                          STRANDEDNESS: singl
STRANDEDNESS: singl
TOPOLOGY: linear
IMMEDIATE SOURCE:
LIBRARY: GENEBANK
                                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
NAME: Cerrone, Michael C
                                                                                                                                                                                                                  REGISTRATION NUMBER: 39,132
REFERENCE/DOCKET NUMBER: PF
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES:
                                                                                                                                                                                                    TELEFAX: 650-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 77557755775577557755775577557755775577557755
                                                                                                                                      885 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Incyte Pharmaceuticals, Inc
                                                                                                           single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-131-648-2
US-09-476-062A-43
PCT-US96-01314-43
PCT-US96-01314-43
PCT-US96-01314-43
PCT-US96-01314-43
US-08-173-497-3
US-08-185-618-3
US-08-605-672-3
US-08-605-672-3
US-08-943-363-3
US-08-943-363-3
US-09-688-307A-3
US-09-688-307A-3
PCT-US96-01314-42
US-09-388-774-4
US-09-388-774-4
                                                                                                                                                                                                                                                    PF-0505
   Score 92;
   B
   ω
--
 Length 885
```

Result No.

Score

77.5 77.5 77.5 77.7

76.

79.5 79.5 79

score greater

18

Minimum Maximum

Scoring table: Sequence:

Title: Perfect score:

Searched:

Database

9 2 4 2 5 5

Best Local Similarity

```
맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
밁
                                Ś
                                                                                                                                            ; CLONE: gi288563
US-09-388-774-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-388-774-5
                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: Hilman, Jennifer L.
APPLICANT: Guegler, Karl J.
APPLICANT: Patterson, Chandra
TITLE OF INVENTION: GROWTH-ASSOCIATED TRYPSIN-TYPE
TITLE OF INVENTION: INHIBITOR HEAVY CHAIN PRECURSOR
                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
                                                                                                                                                                             TOPOLOGY: line
IMMEDIATE SOURCE:
LIBRARY: GENEE
                                                                                                                                                                                                                                                                                                                                                                TELEPHONE: 650-855-0555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: 09/074,579
                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122 LTDGHNNLGMNPVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  283 FVIDISGSMAGR-----KLEQTKEALLRILEDMKEEDY----LNFILFSGDV--STWK 329
283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OPERATING SYSTEM: DOS
OPERATING SYSTEM: DOS
SOPTWARE: Word Perfect 6.1/MS-DOS 6.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16
                                    16
                                                                                     Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 39,132
REFERENCE/DOCKET NUMBER: PF-0505 US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 94304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CITY: Palo Alto
                                                                                                                                                                                                                                    STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                TELEFAX: 650-845-4166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/09/388,774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                                                                                                                                                                                        ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LTDGDANVGESRPEKIQ 405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHLVQATPENLQEARTFVKSMEDKG-MTNINDGLLRGISMLNKAREEHRIPERSTSIVIM 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     YLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SCVAECA-----VNTIKSDLEIFGRLTPVGDGIKMHETVIN-----QMPPQAA--VIL 121
                                YLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWN 75
FVIDISGSMAGR-----KLEQTKEALLRILEDMKEEDY----LNFILFSGDV--STWK 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           34;
                                                                                                                                                                                                                                                       amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                          Cerrone, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/09388774
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3174 Porter Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                8.2%; Score 92; DB 4; Length 885; llarity 24.8%; Pred. No. 0.082; Conservative 30; Mismatches 45; Indels
                                                                                                                                                                                 GENEBANK
                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Incyte Pharmaceuticals, Inc
                                                                                                                                                                                                                                                                      amino acids
                                                                                                                                                                                                                                single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         24.8%; Pred. No. 0.082;
tive 30; Mismatches
                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28;
                                                                      28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                      Gaps
                                                                      7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-049-698-41
                                           밁
                                                                    Ś
             S
                                                                                                                                                          US-09-049-698-41
                                                                                                Query Match
Best Local S
Matches 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
APPLICANT: BILLIN
APPLICANT: COHEN,
                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 917 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                    REFERENCE/DOCKET NUMBER: 60
TELECOMMUNICATION INFORMATION:
TELEPHONE: 847/935-1729
                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/8:
FILING DATE: 31-MAR-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                         MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      389
                                           310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            330
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OPERATING SYSTEM:
SOFTWARE: FastSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CITY: Abbott Park STATE: IL
                                                                    17 LVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFAPYSVIIPQGSWNS 76
                                                                                                               Local Similarity
                                                                                                                                                                                                                                                                                                                                              NAME: Becker, Cheryl REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                77
                                                                                                                                                                                      TOPOLOGY:
                                                                                                                                                                                                  STRANDEDNESS:
                                                                                                                                                                                                                 TYPE: amino acid
                                                                                                                                                                                                                                                                                     TELEFAX: 847/938-2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LTDGHNNLGMNPVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EHLVQATPENLQEARTFVKSMEDKG-MININDGLLRGISMLNKAREEHRIPERSTSIVIM 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SCVAECA-----VNTIKSDLEIFGRLTPVGDGIKMHETVIN-----QMPPQAA--VIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LTDGDANVGESRPEKIQ 405
                CV---
                                         VLDKSGSMG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60064-3500
R READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1, Application US/09049698
6368792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    E: Abbott Laboratories
100 Abbott Park Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BILLING-MEDEL, PATR
COHEN, MAURICE
COLPITTS, TRACEY L.
FRIEDMAN, PAULA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STROUPE, STEPHEN D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ROBERTS-RAPP, LISA
RUSSELL, JOHN C.
                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KLASS, MICHAEL R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              HAYDEN, MARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IBM Compatible
                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Diskette
                                                                                                                                                                         No. 6368792e
                                                                                                                                                                                                  single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REAGENTS AN USEFUL FOR TRACT
                                                                                                                8.2%;
--AECAVNTIKSDLEIFGRLTPVG-----DGIKMHETVINQMPP 115
                                            ----GKDRLNRMNQAAKHFLLQ---
                                                                                                                                                                                                                                                                                                                                                                                                        08/828,856
                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/09/049,698
                                                                                                                                                                                                                                                                                                                                              35,441
                                                                                                                                                                                                                                                           41:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PATRICIA A.
                                                                                                                                                                                                                                                                                                                                    6068.US.P1
                                                                                                  Score 91.5; DB 4;
Pred. No. 0.099;
6; Mismatches 55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AND METHODS
OR DETECTING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FOR THE DISEASES OF THE GASTROINTESTINAL
                                                                                                   55;
                                                                                                                            Length 917;
                                              .----TVENGSWVG 345
                                                                                                     Indels
                                                                                                     75;
                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            121
                                                                                                     8
```

S

402 116

156

밁

밁 Ś 밁

66;

Gaps

?:

```
RESULT 5
US-09-206-942-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Haemophilus influenzae US-09-206-942-35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 4
US-09-206-942-35
                                                                                                                                                                                                                                                             Sequence 37, Application US/09206942 Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 35, Application US/09206942 Patent No. 6432669 GENERAL INFORMATION:
                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Loosmore, Sheena M.
APPLICANT: Yang, Yan-Ping
APPLICANT: Xlein, Michel H.
TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High
TITLE OF INVENTION: Molecular Weight Proteins
FILE REFERENCE: 1038-861 MIS: jb
CURRENT APPLICATION NUMBER: US/09/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER FILING DATE: 1998-10-07
NUMBER OF SEQ ID NOS: 95
SOPTWARE: Patentin Ver. 2.1
APPLICANT: LOOSMOTE, Sheena M.
APPLICANT: Yang, Yan-Ping
APPLICANT: Klein, Michel H.
TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae
TITLE OF INVENTION: Molecular Weight Proteins
TILE REFERENCE: 1038-861 MIS:jb
CURRENT APPLICATION NUMBER: U5/05/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 915
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                    241 GNISOKEGNLTISSDKVNITERITIKAGVN 270
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     459 YVSDEAQNNGLIDAFGALTSGN 480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 103 IKWHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADD----- 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       346 MVHFDSTATIVNKLIQIKSSDERNTLMAGLPTY----PLGGTSICSGIKYAFQVIGELHS 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       y Match 7.7%; Score 86; DB 4
Local Similarity 17.8%; Pred. No. 0.44;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51 PKMSYQGGLYTFA-----PYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDG 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11 VESYNYLVDYSGSMMMKHVAVREPKIELAKEAIL-------KINAAM 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |:| | | | | | ::
| ISIAKGGAIFKDIE--NTGSLNITTKSDSNHHTIIKGNITNRKGDLNITNNGDNTEIQIG 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q---AAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAVCQEFVNSVFCQEQILVTEEVVVLRGVN 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IESQNFSASGGSSLKFKSEGSTHAAFTIKNDLILNATGGNISLNQVAGIDSNLKKSLIAN 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---DDAEGKAIIDQIVALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QLDGSEVLLLTDGEDNTASSCIDEVK---QSGAIVHFIALGRAADEAVIEMSKITGGSHF 458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------LTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGLFDNQGKSN 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KNITFEGGNITLAADKKPIEIKGNITVKEGA-NVTLRSANYGNDKSALSIRGNVTNKGN-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative 38; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 4; Length 915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                 High
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; EARLIER FILING DATE: 1998-10-07; NUMBER OF SEQ ID NOS: 95
SOFTWARE: PatentIn Ver. 2.1; SEQ ID NO 37
LENGTH: 1222; TYPE: PRT
ORGANISM: Haemophilus influenzae
                                                                                                                              밁
                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                  닭
                                                                            S
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-206-942-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-206-942-37
                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-206-942-34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: LOOSMOTE, Sheena M.
APPLICANT: Yang, Yan-Ping
APPLICANT: Yang, Yan-Ping
APPLICANT: Klein, Michel H.
TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High
TITLE OF INVENTION: Molecular Weight Proteins
FILE REFERENCE: 1038-861 MIS:jb
CURRENT APPLICATION NUMBER: U$/09/206,942
CURRENT APPLICATION NUMBER: U$/09/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER FILING DATE: 1998-10-07
NUMBER OF SEQ ID NOS: 95
SOFTWARE: Patentin Ver. 2.1
150 ID NO 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent No. 6432669
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                            Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 34, Application US/09206942 Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 1228
                                                                                                                                                                                                                                   335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     329
                               453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               447
                                                                               103
                                                                                                                                 395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           548 GNISOKEGNLTISSDKVNITERITIKAGVN 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             158 --- AEGKAIIDQIVALNSGSVLV------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   389
                                                                                                                                                                                                                                                                                                                                  y Match 7.7%; Score 86; DB Local Similarity 17.8%; Pred. No. 0.7 hes 48; Conservative 38; Mismatches
                                                                                                                                                                              51
                                                                                                                                                                                                                                                                                  11 VESYNYLVDYSGSMMKHVAVREPKIELAKEAIL------KINAAM 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51 PKMSYQGGLYTFA-----PYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDG 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11 VESYNYLVDYSGSMMMKHVAVREPKIELAKEAIL------KINAAM 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Match 7.7%; Score 86; DB 4; Local Similarity 17.8%; Pred. No. 0.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ISIAKGGAIFKDIE--NTGSLNITTKSDSNHHTIIKGNITNRKGDLNITNNGDNTEIQIG 547
                                                                            IKMHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADD-----
                                                                                                                                 KNITFEGGNITLAADKKPIEIKGNITVKEGA-NVTLRSANYGNDKSALSIRGNVTNKGN-
                                                                                                                                                                              PKMSYQGGLYTFA-----PYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDG 102
                                                                                                                                                                                                                                IESQNFSASGGSSLKFKSEGSTHAAFTIKNDLILNATGGNISLNQVAGIDSNLKKSLIAN 394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PAVCQEFVNSVFCQEQILVTEEVVVLRGVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IKMHETVINQMPPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADD----- 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KNITFEGGNITLAADKKPIEIKGNITVKEGA-NVTLRSANYGNDKSALSIRGNVTNKGN- 446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IESQNFSASGGSSLKFKSEGSTHAAFTIKNDLILNATGGNISLNQVAGIDSNLKKSLIAN 388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---LTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGLFDNQGKSN 489
                                  -LTVTGSAINIEKNLTVEGSAKFLANPNYSFNVSGLFDNQGKSN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    38;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                            DB 4; Length 1228;
0.7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         98; Indels
                                                                                                                                                                                                                                                                                                                                       98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 1222;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----DGLQLLQN 185
                                                                                                                                                                                                                                                                                                                                       Indels
```

Matches

밁 S 밁 S B ঠ 밁 Ś 밁 S

6;

Gaps

7;

495

452

186

140

82

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-08-968-563-11
                               US-08-968-563-11
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
APPLICANT: CHARLE
                                                                                                                                                                          TELEFAX: 302-773-0164
INFORMATION FOR SEQ ID NO: 11:
                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:

MEDIUM TYPE: 3.50 INCH DISKETTE

COMPUTER: ISM PC COMPATIBLE

COMPUTER: MICROSOFT WORD FOR WINDOWS 95

SOFTWARE: MICROSOFT WORD VERSION 7.0A

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/968,563

FILING DATE:

CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                            TOPOLOGY: unk
MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                          TELECOMMUNICATION INFORMATION: TELEPHONE: 302-892-8112
TELEFAX: 302-773-0164
                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: FLOYD, LINDA AXAMETHY
REGISTRATION NUMBER: 33,692
                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/030
FILING DATE: NOVEMBER 13,
                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 4
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           186 PAVCQEFVNSVFCQEQILVTEEVVVLRGVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: GENENCOR INTERNATIONAL,
STREET: 4 CAMBRIDGE PLACE
STREET: 1870 SOUTH WINTON ROAD
CITY: ROCHESTER
                                                                                                                                                                                                                                           REFERENCE/DOCKET NUMBER: CR
                                                                                                           STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: E. I. DU PONT DE NEMOURS AND COMPANY
STREET: 1007 MARKET STREET
                                                ORGANISM:
                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GNISQKEGNLTISSDKVNITERITIKAGVN 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ISIAKGGAIFKDIE--NTGSLNITTKSDSNHHTIIKGNITNRKGDLNITNNGDNTEIQIG 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---AEGKAIIDQIVALNSGSVLV-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11, Application US/08968563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WILMINGTON
: DELAWARE
                                                                                                                          amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NEW YORK
                                                                                                                                          391 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DONALD E. TRIMBUR
GREGORY M. WHITED
VASANTHA NAGARAJAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MARK S. PAYNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AMY (KUANG-HUA) HSU
RICHARD D. LA REAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHARLES E.
ANTHONY A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RAMESCH V. NAIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STEPHEN K. PICATAGGIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MARIA DIAZ-TORRES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SHARON L. HAYNIE
                                                                                            unknown
                                                GPD1
                                                                           protein
                                                                                                             unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRODUCTION OF 1,3-PROPANEDIOL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAKAMURA
GATENBY
7.1%;
                                                                                                                                                                                                                                                                                                                            60/030,601
                                                                                                                                                                                                                                               CR-9982
                                                                                                                                                                                                                                                                                                             1996
Score 80;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            215
DB 3;
Length 391;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -DGLQLLQN 185
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-969-683A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 8
                                                                          US-08-969-683A-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 11, Application of the Patent No. 6136576
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Local Similarity
Query Match 7.1
Best Local Similarity 22.1
Matches 40; Conservative
                                                                                                                                                                                                                                            INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: PCT/US97/20873
FILLING DATE: 13-NOV-1997
APPLICATION NUMBER: 60/030,601
FILING DATE: 13-NOV-1996
ATTORNEY/AGENT INFORMATION:
ANALYSIS OF THE PROPERTY OF THE PROPERTY OF THE POPULATION:
                                                                                         MOLECULE TYPE:
ORIGINAL SOURCE:
ORGANISM: GPI
                                                                                                                                                                                                                                                                                              REFERENCE/DOCKET NUMBER: GC
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-864-7620
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OPERATING SYSTEM: Windows Version SOFTWARE: FastSEQ for Windows Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: GENENCOR INTERNATIONAL, INC.
TITLE OF INVENTION: METHOD FOR THE RECOMBINANT
TITLE OF INVENTION: PRODUCTION OF 1,3 PROPANEDIOL
                                                                                                                                                                                                                       SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         185 A 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             217 A 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161 KAIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTEEVVV----LRGVNF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       111 NOMPPQAAVILLTDGHNNLGMNP--VEEVKSI-----YQTNPNVCFHVVSFADDAEG 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: Genencor International, STREET: 4 Cambridge Place
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  64 PYSV-IIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVG-----DGIKMHETV-----I 110
                                                                                                                                                                                                                                                                                                                                                     NAME: Glaister, Debra REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET:
                                                                                                                                                                                   TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COUNTRY:
                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                STRANDEDNESS:
                                                                                                                                                                                                                                                                                 TELEFAX: 650-845-6504
                                                                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -SHVRAISCLKGFEVGAKGVQLLSS-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KYLPG----ITLPD---NLVANPDLIDSVKDVDIIVFNIPHQFLPRICSQLKGHVD---- 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PFKVTVIGSGNWGTTIAKVVAENCKGYPEVFAPIVQMWVFEEEINGEKLTEIINTRHQNV 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rochester
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/08969683A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1870 South Winton road
                                                                                                                                                                                                  391 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        U.S.A
                                                                                                                                               unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IBM Compatible
                                                                                                                              protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Diskette
                                                                                                                                                                  unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22.1%;
7.1%; Score 80; DB 4; Length 391; 22.1%; Pred. No. 0.6; tive 27; Mismatches 58; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US/08/969,683A
                                                                                                                                                                                                                                                                                                                                                     33,888
                                                                                                                                                                                                                                            11:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pred. No. 0.6; 7; Mismatches
                                                                                                                                                                                                                                                                                                                                        369-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.0b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----YITEELGIQCGALSGANI 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          56;
   56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10;
     10;
```

```
र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                            US-09-297-928-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-297-928-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
   Query Match 7.1%;
Best Local Similarity 22.1%;
Matches 40; Conservative 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 7, Application Patent No. 6358716 GENERAL INFORMATION:
                                                                                                                                                                                             TELEX: 6717325
INFORMATION FOR SEQ ID NO: 7:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                             APPLICATION NUMBER: US/09/297,928
PILING DATE: 11-May-1999
CLASSIFICATION: <UNKnown>
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION NUMBER: 60/03602
FILING DATE: NOVEMBER: 13, 1996
ATTORNEY/AGENT INFORMATION:
NAME: FLOYD, LINDA AXAMETHY
REGISTRATION NUMBER: 33,692
REFERENCE/DOCKET NUMBER: 37,622
TELEPROMOUNICATION INFORMATION:
TELEPHONE: 302-892-8112
TELEPROMOUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185 A 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    161 KAIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTEEVVV----LRGVNF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      111 NOMPPOAAVILLTDGHNNLGMNP--VEEVKSI-----YQTNPNVCFHVVSFADDAEG 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 3.5 INCH
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: MICROSOFT WINDOWS
SOFTWARE: MICROSOFT WORD VERSION 7.0
                                                                                     STRANDEDNESS: unknown
TOPOLOGY: unknown
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
ADDRESSEE: GENENCOR INTERNATIONAL,
STREET: 4 CAMBRIDGE PLACE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LAREAU, RICHARD D.
TITLE OF INVENTION: METHOD FOR THE PRODUCTION OF
GLYCEROL BY RECOMBINANT
ORGANISMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PFKVTVIGSGNWGTTIAKVVAENCKGYPEVFAPIVQMWVFEEEINGEKLTEIINTRHQNV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PYSV-IIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVG-----DGIKMHETV-----I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -SHVRAISCLKGFEVGAKGVQLLSS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KYLPG----ITLPD---NLVANPDLIDSVKDVDIIVFNIPHQFLPRICSQLKGHVD----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CITY: ROCHESTER
STATE: NEW YORK
COUNTRY: U.S.A.
                                                                                                                                                              TYPE: amino acid
                                                                                                                                                                                                                                                  TELEPAX: 302-773-0164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application US/09297928
                                                                                                                                                                           LENGTH: 391 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           14618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BULTHUIS, BEN A.
GATENBY, ANTHONY A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATENBY, ANTHONY HAYNIE, SHARON L. HSU, AMY K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1870 SOUTH WINTON ROAD
     27;
 Score 80; DB 4; Length 391; Pred. No. 0.6; Indels
                                                                                         7:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---YITEELGIQCGALSGANI 184
 56;
 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142
 10;
                                                                                   RESULT 11
US-09-206-942-43
                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                   멼
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                Sequence 43, Application US/09206942 Patent No. 6432669
GENERAL INFORMATION:
APPLICANT: Loosmore, Sheena APPLICANT: Yang, Yan-Ping
```

```
; TYPE: PRT
; ORGANISM: Haemophilus influenzae
US-09-206-942-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-206-942-45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Ver. SEQ ID NO 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 7.1%; Score 79.5; D)
Best Local Similarity 19.4%; Pred. No. 3.5;
Matches 48; Conservative 41; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 45, Application US/09206942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High TITLE OF INVENTION: Molecular Weight Proteins FILE REFERENCE: 1038-861 MIS:jb CURRENT APPLICATION NUMBER: US/09/206,942 CURRENT FILING DATE: 1998-12-08 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07 NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07 NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Loosmore, Sheena M. APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 1095
569 ITIKKGVN
                                                                                                          509
                                                                                                                                                                                                              449
                                                                                                                                                                                                                                                                  123
                                                                                                                                                                                                                                                                                                                      408
                                                                                                                                                                                                                                                                                                                                                                                                                        355 IESDLTLNATGGNISLNQVAGIDGNLQ-----KSLVANKNITFEGGNITLAADKKPIE 407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 161
                                                   208 VVVLRGVN 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      185 A 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      111
                                                                                                                                                                                                                                                                                                                                                                       64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.<u>4</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11 VESYNYLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          64
                                                                                                                                                        VALNSGS---VLVDG-------LQLLQNP-----AVCQEFVNSVFCQEQILVTEE 207
                                                                                                       ITTNSDSAYRTIIEGNITNSNGDLNITDNKNNAEIQIGGNISQKEGNLTISSDKINITNQ 568
                                                                                                                                                                                                                                                               TDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADD-----AEGKAIIDQI------ 167
                                                                                                                                                                                                                                                                                                                IKGNITVKEGA-NVTLRSANYGNDKSALSIRGNVTNKGN------LTV 448
                                                                                                                                                                                                                                                                                                                                                                    -PYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINQMPPQAAVILL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -SHVRAISCLKGFEVGAKGVQLLSS--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KAIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTEEVVV----LRGVNF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KYLPG----ITLPD---NLVANPDLIDSVKDVDIIVFNIPHQFLPRICSQLKGHVD---- 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NQMPPQAAVILLTDGHNNLGMNP--VEEVKSI-----YQTNPNVCFHVVSFADDAEG 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PFKVTVIGSGNWGTTIAKVVAENCKGYPEVFAPIVOMWVFEEEINGEKLTEIINTRHONV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PYSV-IIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVG-----DGIKWHETV----I
                                                                                                                                                                                                            TGSAINIEKNLTVEGSAKFLANPNYSPNVSGLFDNQGKSNISIAKGGAHFKDINNTKSLN 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   6432669
  576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ---YITEELGIQCGALSGANI 184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 1095;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9;
```

4;

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: PRT ; ORGANISM: Haemophilus influenzae US-09-206-942-43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 12
US-08-470-179-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO 43
LENGTH: 1101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 17, Application US/08470179 Patent No. 5645994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High TITLE OF INVENTION: Molecular Weight Proteins FILE REFERENCE: 1038-861 MIS:jb CURRENT APPLICATION NUMBER: US/09/206,942 CURRENT FILING DATE: 1998-12-08 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07 NUMBER OF SEQ ID NOS: 95 SOFTWARE: Patentin Ver: 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Huang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Huang Ph.D, Wai Mun
TITLE OF INVENTION: Method and Compositions for
TITLE OF INVENTION: Identification of Species in
NUMBER OF SEQUENCES: 207
                                     ATTORNEY/AGENT INFORMATION:
NAME: Sweigert Ph.D, Susan E.
REGISTRATION NUMBER: 36,289
REFERENCE/DOCKET NUMBER: 2601
TELECOMMUNICATION INFORMATION: TELEPHONE: 801-532-1922
                                                                                                                                                                CURRENT APPLICATION DATA: APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         414 IKGNITVKEGA-NVTLRSANYGNDKSALSIRGNVTNKGN------LTV 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          11 VESYNYLYDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYTFA----- 63
                                                                                                                                                                                                 MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
                                                                                                                     CLASSIFICATION:
                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IESDLTLNATGGNISLNOVAGIDGNLQ-----KSLVANKNITFEGGNITLAADKKPIE 413
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VVVLRGVN 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VALNSGS---VLVDG------LQLLQNP-----AVCQEFVNSVFCQEQILVTEE 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ITIKKGVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADD-----AEGKAIIDQI----- 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -PYSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINQMPPQAAVILL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGSAINIEKNLTVEGSAKFLANPNYSFNVSGLFDNQGKSNISIAKGGAHFKDINNTKSLN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ITTNSDSAYRTIIEGNITNSNGDLNITDNKNNAEIQIGGNISQKEGNLTISSDKINITNQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       48;
                                                                                                                                                                                                                                                                                                               84110
                                                                                                                                                                                                                                                                                                                                                                    Salt Lake City
                                                                                                                                                                                                                                                                                                                                                   Utah
                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             582
                                                                                                                                                                                                                                                                                                                                                                                       Trask, Britt and Rossa
O. Box 2550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.18;
19.48;
                                                                                                                          435
                                                                                                                                                                US/08/470,179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 79.5; DE Pred. No. 3.5; 41; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Species in a Sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 1101;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9;
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-470-179-19; Sequence 19, A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-470-179-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Patent No. 5645994
GENERAL INFORMATION:
APPLICANT: Huang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: protein
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: internal
ORIGINAL SOURCE:
                                                                                                                                               INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                          COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version:
CURRENT APPLICATION DATA:
             HYPOTHETICAL: NO
                                                                                                                                                                            NAME: Sweigert Ph.D, Susan E. REGISTRATION NUMBER: 36,289 REFERENCE/DOCKET NUMBER: 2601 TELECOMMUNICATION INFORMATION: TELEPHONE: 801-532-1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Huang Ph.D, Wai Mun
TITLE OF INVENTION: Identification of Species i
                                             MOLECULE TYPE:
                                                                                                                             SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                             ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
 FRAGMENT TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       127 NLLVNG 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        174 SVLVDG 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: not relevant not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE: U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   65 YSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKMHETVINQMPPQAAVILLTD 124
                                                                                                                                                                                                                                                                              FILING DATE:
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM:
                                                                TOPOLOGY:
                                                                             STRANDEDNESS:
                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE:
                                                                                                             ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GQGNFGSIDGDSAAAMRYTEIRLAKIAHELMADLEKETVDFVDNYDGTEKIPDVMPTKIP 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GHNNLG-----MNPVEEVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSG 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YAMNVLGNDWNKAYKKSA--RVVGD--VIGKYHPHGDS-AVYDTIVRMAQPFSLRYMLVD 66
                                                                                                                                                                                                                                                                                                                                                                                                                             84110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Salt Lake City
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                            i: 141 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/08470179
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Utah
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        E: Trask, Britt and Rossa
P.O. Box 2550
                                                                                                                                                                801-531-9168
                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Escherichia coli
                                                                not relevant
                                NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 internal
internal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7.1%; Score 79; DB 1
19.8%; Pred. No. 0.16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           207
                                                                                                                                                                                                                                                                                                                US/08/470,179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1; Length 141;
                                                                                                                                                                                                                                                                                                                                                #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            in a Sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

```
ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; ORIGINAL SOURCE:
; ORGANISM: Sal
US-08-470-179-19
                                                  US-08-348-891A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-348-891A-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
                   Query Match
   Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent No. 5654136
                                                                                                                         TELEX: 248425 EMBON
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
APPLICATION DATA:
                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: KP
                                                                                                                                                                                                                                                                                 FILING DATE: 10-MAR-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 3
FILING DATE: 14-OCT-1991
                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 25-NOV-1
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                 MOLECULE
                                                                                                                                                                                                                                                                  ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: MAKINO, Satoshi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174 SVLVDG 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         127 NLLVNG 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125 GHNNLG------MNPVEBVKSIYQTNPNVCFHVVSFADDAEGKAIIDQIVALNSG 173
                                                                               TOPOLOGY:
                                                                                                                                                                                                                                 NAME: PATCH, Andrew J.
REGISTRATION NUMBER: 32,925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CITY: Arlington
STATE: Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12 YAMNVLGNDWNKAYKKSA--RVVGD--VIGKYHPHGDS-AVYDTIVRMAQPFSLRYMLVD 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               65 YSVIIPQGSWNSCVAECAVNTIKSDLEIFGRLTPVGDGIKWHETVINQMPPQAAVILLTD 124
                                                                                                                                                                       TELEFAX:
                                                                                                                                                                                       TELEPHONE:
                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET:
                                                                                                            LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GQGNFGSIDGDSAAAMRYTEIRLAKIAHELMADLEKETVDFVDNYDGTEKIPDVMPTKIP 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25;
                                                                                            amino acid
                                                                 TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/08348891A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Virginia
                                                                                                           2183 amino acids
                                                                                                                                                                       703-521-2297
703-685-0573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       745 South 23rd Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MORI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Salmonella typhimurium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SASAKI, Keiko
MORI, Takayuki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      YOUNG & THOMPSON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                               25-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.1%;
   7.1%;
17.7%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTENUATED MEASLES VIRUS VACCINE,
CONTAINING SPECIFIC NUCLEOTIDE SEQUENCE AND A METHOD
ITS ABSOLUTE IDENTIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                             Release #1.0,
                                                                                                                                                                                                                                                                                                                                                  US 07/848,400
                                                                                                                                                                                                                                                                                                                                                                                                            US/08/348,891A
                                                                                                                                                                                                                                                                                                    JP 3-293625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; Score 79; DB 1;
; Pred. No. 0.16;
26; Mismatches 5
                                                                                                                                                                                                                        KP-7501
   Score
Pred.
   79;
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Version
DB
12;
                 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                              #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 141
                   Length 2183;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.
```

```
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-905-817-7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 7, Applic Patent No. 5824777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1777
                                                                                                                                                                                                                    FILING DATE: 25-NOV-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 0
FILING DATE: 10-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                   ATTORNEY/AGENT INFORMATION:
NAME: PATCH, Andrew J.
REGISTRATION NUMBER: 32,5
REFERENCE/DOCKET NUMBER:
                                                                                                                                                             PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 3-293625
FILING DATE: 14-OCT-1991
                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/348,891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2059 SILIL 2063
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1999 SCIQAIVGDVVSRGDINPTLKKLTPIEQVLINCGLAINGPKLCKELIHHDVASGQDGLLN 2058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1940 VNLVYPRYSNFISTESYLVMTDLKANRLMNP-EKIKQQIIESSVRTSPGLIGHILSIKQL 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1821 QRELAPYPSEVGLVEHRMGVGNIVKVLFNGRPEVTWVGSV-DCFNFIVSNIPTSSVGFIH 1879
                                                                                                                                                                                                                                                                                                                                                                                           CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: SASAKI, Keiko
APPLICANT: MORI, Takayuki
APPLICANT: MAKINO, Satoshi
TITLE OF INVENTION: ATTENU
                                                                      FELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET: /%
CITY: Arlington
Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               110 INOMPPO-----AAVILLIDGHNNLGMNPVEEVK----SIYQTNPNVCFHVVSFADD 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               207 EVVVL 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 AEGKAIIDQIVALNS------GSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTE 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           88
                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: FILING DATE: 04-AUC CLASSIFICATION: 43
                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                 TELEPHONE: 703-521-2297
TELEFAX: 703-685-0573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7 CTKRVESYNYLVDYSGSMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---FAPYSVII-----AVNTIK 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SDIETLPNKDTIEKLEELAAILSMALLLGKIGSILVIKLMPFSGDFVOGFISYVGSYYRE 1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SDLE----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLEPGEDGLFLGEGSGSMLITY ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/08905817
FOR SEQ ID NO:
                   248425 EMBON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    745 South 23rd Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YOUNG & THOMPSON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Floppy disk
                                                                                                                                                                                                                                                                                                                                                      04-AUG-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTENUATED MEASLES VIRUS VACCINE,
CONTAINING SPECIFIC NUCLEOTIDE SEQUENCE AND A METHOD
ITS ABSOLUTE IDENTIFICATION
                                                                                                                                                                                                                                       US 07/848,400
                                                                                                                                                                                                                                                                                                                                                                        US/08/905,817
                                                                                                         32,925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52;
                                                                                         KP-7501A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --IFGRLTPV------GDGIK------MHETV 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----KEILKLN----KCFYNSGVSANSRSG 1820
                                                                                                                                                                                                                                                                                                                                                                                                                 Version #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 118;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FOR
```

```
; SEQUENCE CHARACTERISTICS:
; LENGTH: 2183 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
US-08-905-817-7
Search completed: April 9, 2003, 14:33:39
Job time : 32 secs
                                                                                                              Ś
                                                                                                                                                    밁
                                                                                                                                                                                     Ś
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 7.1%; Score 79; DB 2; Length 2183; Best Local Similarity 17.7%; Pred. No. 12; Matches 54; Conservative 52; Mismatches 81; Indels 1:
                                                                                                                                                                                                                         1880 ŚDIETLPNKDTIEKLEELAAILSMALLLGKIGSILVIKLMPFSGDFVQGFISYVGSYYRE 1939
                                                                                                                                                                                                                                                                                                                                                                             1821 QRELAPYPSEVGLVEHRMGVGNIVKVLFNGRPEVTWVGSV-DCFNFIVSNIPTSSVGFIH 1879
                                                                                                                                                                                                                                                                                                                                                                                                                                                      2059 SILIL 2063
                                                                                                                                                    1999 SCIQAIVGDVVSRGDINPTLKKLTPIEQVLINCGLAINGPKLCKELIHHDVASGQDGLLN 2058
                                                                                                                                                                         158 AEGKAIIDQIVALNS------GSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTE 206
                                                                                                                207 EVVVL 211
                                                                                                                                                                                                                                                                                                                                         88 SDLE------MHETV 109
                                                                                                                                                                                                                                                                                                                                                                                                                 62 ---FAPYSVII-----AVNTIK 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7 CTKRVESYNYLVDYSGSMMMKHVAVREPKIELAKEAILKINAAMPKMSYQGGLYT---- 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81; Indels 118; Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13;
```

```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Word size
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OM protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Post-processing: Listing first 1000 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Searched:
     O 2 0 0 1 4 0 2
                                                                                                                                                            Pred. No. is the nu score greater than and is derived by \varepsilon
                                                                                                             Score
                                                                                                                                                                                              A Geneseq 101002:*

1: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1980.DAT:*
2: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1981.DAT:*
3: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1982.DAT:*
4: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
5: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1983.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
6: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
7: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
8: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1985.DAT:*
9: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1989.DAT:*
10: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
11: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
12: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
13: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
14: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
15: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
16: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
17: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
18: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
19: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
20: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
21: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
22: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA1999.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2000.DAT:*
23: /SIDS2/gcgdata/geneseq/geneseqp-emb1/AA2001.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2
218
1 AEVTASCTKRVESY
                                                                                                                                                            is the number of results predicted by ater than or equal to the score of the rived by analysis of the total score di
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OLIGO
Gapop 60.0 ,
                                                                                                             Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   April 9, 2003, 14:33:08 ; Search time 73 Seconds (without alignments) 397.927 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               908470 seqs, 133250620 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AEVTASCTKRVESYNYLVDY......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GenCore version 5.1.4_p5_4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                              Length
    85
74
139
141
148
151
157
168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapext 60.0
                                                                                                              DB
                                                                                                              H
   ABG62118
ABP33399
AAG12854
AAG12853
AAW20201
AAG12852
AAB25232
AAB25232
AAM49083
AAG12701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                              distribution.
                                                                                                                                                                    result being p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         908470
Human prostate spe
Human ORP372 prot
Arabidopsis thalia
Arabidopsis thalia
H. pylori secreted
Arabidopsis thalia
Eucalyptus grandis
Human transcriptio
Novel human diagno
Arabidopsis thalia
                                                                                                            Description
                                                                                                                                                                      printed,
  AAB62738
AAG27429
AAB62737
ABB90217
AAY10949
           AAR27798
AAU91504
AAU91503
AAU91506
AAU91508
AAU91510
AAU91510
AAU41111
AAR75739
                                                                                       AAB46342
AAB46403
AAW20585
AAU91519
                                                                                                                                                                              AAB62729
AAB62728
AAB62739
                                                                                                                                                                                                           AAB62710
AAB62713
AAB62712
AAB62726
                                                                                                                                                                                                                                                                                          AAE13756
AAB96279
ABG07381
AAW57572
AAU36280
AAG28188
AAU91515
                                                                                                                                                                                                                                                                                                                                                              AAE13759
AAE13762
AAY29490
AAB44415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB62703
AAB62721
AAG28190
AAU57004
ABP30264
AAR75728
AAR15720
AAW1127
AAR75727
AAG28189
                                                                                                                                                                                                                                                   AAU91518
AAB62711
                                                                                                                                                                                                                                                                       AAU91516
AAU91517
                                                                                                                                                                                                                                                                                                                                                                                                                        AAB44417
AAB44417
AAE13755
AAE13758
AAY29495
AAY29492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAG12700
AAR62784
AAR62772
AAR62785
AAG12699
  AAR75740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABP26037
```

Arabidopsis thalia Borrelia M57 antig Borrelia Wantigen Arabidopsis thalia Borrelia Wantigen Arabidopsis thalia Borrelia Wantigen Borrelia Dagorferi ospc Burgdorferi ospc Arabidopsis thalia Propionibacterium Streptococcus poly B. burgdorferi stranshidopsis thalia Renal cancer assoc Streptococcus poly Human lung tumour Human Human lung tumour Human Human lung tumour Human Human lung tumou

144 144 146 146 148 148 150 151 152 153 155 155 155 155	122 123 133 133 133 134 144 144 144 144 144 14	1113 1114 1116 1117 1118 1119 1120 1121 1122 1123 1124 1125	90 91 92 93 94 95 97 98 97 98 97 98 98 98 98 98 98 98 98 98 98 98 98 98	8 8 8 8 8 8 8 9 8 9 8 9 9 9 9 9 9 9 9 9
თოოთოთოთოთოთოთ	N A A A A A A A A A A A A A A A A A A	n a a a a a a a a a a a a a a		77777
55555555555555555555555555555555555555	, , , , , , , , , , , , , , , , , , ,	12222222222222222222222222222222222222	587 658 749 858 858 858 858 858 869 986 986 986 1005 1005 1107 11407 1407 1417 1417 14345 4345	4 4 4 4 4 4 8 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
			110202020202020202020202020202020202020	
AAU46306 AAU66151 ABP07055 AABP07055 AABP33258 AAW75165 AAW75109 AAW75109 AAW75109 AAW75109 AAW75109 AAW75109 AAW75109 AAW75109 AAW75109 AAW75908 AAW36019	AMU29399 AAM29399 AAM29399 ABG38675 ABG38675 AAR82534 AAB624697 ABB33098 ABB33098 ABB318564 ABB33098 ABB18564 ABB318564 ABB318564 ABB318564 ABB18564 ABB1864666 ABB18646666 ABB18646666 ABB186466666 ABB1864666666 ABB18646666666666666666666666666666666666	ABG61615 AAUB9446 ABB42683 ABB42683 ABB2573 AAM63573 AAM76388 AAM76388 AAM84724 ABB30719 AAM84724 ABB30719 ABB31304 AAM56700 AAM56700	AAB62724 AAR75746 ABG09545 ABG09545 AAB94405 AAB94405 AAW23314 AAW23317 AAW59050 AAO17501 AAO17501 AAO17502 AAO17513 AAB01833 AAB01833 AAB01833 AAB01833 AAB01832 AAB01833 AAB01832 AAB04015	ABG64981 ABG64982 ABG64983 AAE21466 AAE21497 AAE21498
22 4 2 4 5 5 5 2 4 4 4 5	2	4 4 4 4 5 5 5 5 5 6 4 4 4 5 5 5 5 6 7 4 4 4 5 6 7 5 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	B31 NOV B31 NOV Hun Hun Hun Hun Hun Hun Ho	Hum Hum Hum Hum Hum Hum
Propionibact, Propionibact, Propionibact, Propionibact, Human ORFX p. Pinus radiat, Human secret, Pinus radiat, Human secret, Arabidopsis Arabidopsis Novel human Peptide #971. Human bone m. Peptide #100	Peptide #3 Peptide #3 Peptide #3 Peptide #3 Peptide #6 Peptide #6 Peptide #6 Peptide #6 Peptide #6 Peptide #6 Peptide #5	Insulin/i: Peptide ## Protein ## Protein ## Human bon Human bon Peptide ## Human imp Human imp Peptide ## Protein ## Prot	Borrelia sp ch B31 Osp-A/anti Novel human di LDL receptor b Human prottein Human prottate M-terminal seq Listeria monoco H. contortus HC H co	Human alk Human alk Human alk Human ger Human ger Human ger
Propionibacterium Propionibacterium Human ORFX protein Pinus radiata tran Human secreted pro Pinus radiata tran Human secreted pro Arabidopsis thalia Arabidopsis thalia Novel human diagno Peptide #9718 enco Human brain expres Human bone marrow Peptide #10056 enc	ide #3334 / enco ide #3436 enco ide #3289 enco encommente enco ide #536 enco dide #536 enco dide #536 enco dide #536 enco dide #536 enco encommente enco encommente enco encommente enco encommente enco encommente e	Human DPRP-3 pepti Insulin/insulin-li Peptide #10189 enc Protein #8013 enco Human brain expres Human bone marrow Peptide #10533 enc Human immune/haema Peptide #3370 enco Protein #3303 enco Protein #3303 enco Protein #3303 enco Protein #3303 enco Protein #3303 enco Protein #3303 enco	Borrelia sp chimer B31 Osp-A/antigen Novel human diagno LDL receptor bindi Human protein sequ Human prostate pro N-terminal sequenc Listeria monocytog H. contortus HC110- H contortus HC110- H contortus HC110- H contortus HC110- Haemophilus influe Drosophila melanog	albumin fusi albumin fusi albumin fusi gene 15 enco gene 15 enco
	10000000000000000000000000000000000000	,		<b>4444</b> 444
22222222222222222222222222222222222222	11111110000000000000000000000000000000	8 8 8 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	1163 1164 1166 1166 1166 1169 1170 1170 1171 1171 1171 1179 1179 1180 1182 1182 1183 1183	659 621
	\	n		<b>თთთთთ</b>
101 101 103 104 105 106 106 107 108 109 109 111	933 933 933 944 945 945 945 945 945 945 945	8888888 888888888888888888888888888888	655 688 700 700 700 700 700 700 700 700 700 7	000000 000000
	222222222222222222222222222222222222222		222222222222222222222222222222222222222	
AAU23495 AAO65134 AAB52091 AAB52091 AAW79457 AAR36619 AAG57629 AAG59992 AAG599992 AAB576264 AAG33641 AAB18130 AAM818130 AAM818130 AAM818130 AAM818130	AAMOS2376 ABG33376 ABG039376 ABF04502 ABF06641 ABF06641 ABB49894 AAR21849 AAR21849 AAR257412 AAU40923 AAU40923 AAU60997 ABF0552517 ABF0552517 ABF0552517 ABF0552517 ABF0552517 ABF0552517	AAY87139 AAY87140 AAO05559 AAM94900 ABB07059 AAO12125 AAA913637 ABB11382 ABB138590 ABB36590 ABB36590 AAB67553 AAM677569 AAM17569	AAW06578 ABP09290 AAU51370 ABBG1464 AAW64594 AAW13131 AAW64591 AAW12313 ABG46403 ABB22318 AAU41298 AAU41298 AAU41298 AAU41298 AAU41298 AAU41298 AAU41298 AAU41298 AAU41298 AAU41299773 AAW99777 AAW99773	AAG73377 AAG73441 ABG64304 ABG64305 AAU47783 AAR82535
Novel human polype Gene 39 huma polype Gene 39 huma Staphylococc Polypeptide Arabidopsis Arabidopsis Human novel Rabbit bone Arabidopsis Human novel Rabbit bone Pinus radiat Human haemat Human haemat Human haemat Human haemat Mycobacteriu Helicobacteri	Peptide #3129 enco Peptide #3019 enco Human peptide enco Human ORFX protein Human ORFX protein Listeria monocytog Sequence of Plasmo Arabidopsis thalia Propionibacterium Human ORFX protein Human ORFX protein Propionibacterium Arabidopsis thalia Human prostate cDN PloOCC partial ami Human PloOCC fragm	Human secreted pro Human secreted pro Human polypeptide Human proteosome p Human proteosome p Human polypeptide Gene 28 human secr Eucalyptus grandis Peptide #403 enco Protein #3929 enco Human brain expres Human brain expres Human bone marrow Peptide #4003 enco	Human foetal prote Human ORFX protein Propionibacterium Novel human diagno Peptide #11152 enc Human brain expres peptide #7747 enco Human brain expres peptide #7747 enco Human peptide enco Human ORF1291 proti propionibacterium propionibacterium Propionibacterium Propionibacterium Propionibacterium Human immune/haema DEF chimeric molec Propionibacterium Human synthase-lik Chlamydia pneumoni Streptococcus poly Human gene 12 enco Human gene 12 enco Gultamicum prote Human secreted pro Hu	Human s Human s Human a Human a Propior Pybrid
Novel human enzyme Human polypeptide Gene 39 human secr Staphylococcus aur Polypeptide coded Arabidopsis thalia Arabidopsis thalia Human novel endocr Rabbit bone marrow Arabidopsis thalia pinus radiata phos Human hamatologic Mycobacterium spec Helicobacter pylor	Peptide #312 enco Peptide #319 enco Peptide #3919 enco Human ORFX protein Human ORFX protein Listeria monocytog Sequence of Plasmo Arabidopsis thalia Propionibacterium Human ORF4490 prot Human ORF490 prot Human ORF4191 prot Human ORF4191 mot Human DROGC Fragm Human Propionibacterium Human DROGC Fragm	secreted pro secreted pro polypeptide reproductive proteosome p polypeptide 28 human secr yptus grandis 28 human secr yptus grandis 44036 enco in #3929 enco in #3929 enco in #3929 enco	Human foetal proten Human ORFX protein Propionibacterium Novel human diagno Peptide #11152 enc Human brain expres Peptide #747 enco Human poptide enco Human ORF1291 protipropionibacterium Propionibacterium Propionibacterium Propionibacterium Buran immune/haema DEF chimeric molec Propionibacterium Streptococcus poly Human gene 12 enco Human gene 12 enco Cu glutamicum prote Human secreted protein Secreted protein Secreted protein Secreted protein Secreted protein ORFX protein	gene Jene lbum lbum lbac
enzyme eptide an secr cus aur coded thalia thalia endocr marrow thalia ta phos tologic r pylor	19 encode encoprotein protein protein protein protein protein protein protein talia terium te		l protein terium diagno diagno 47 enco expres 47 enco de enco de enco ferium terium te	32- 32- 32- 34 34 34 34 34 34 34 34 34 34 34 34 34

2066 2066 2066 2066 2066 2066 2066 2066	233 233 233 233 233 233 233 233 233 233
<b>თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ </b>	, , , , , , , , , , , , , , , , , , ,
154 154 155 155 159 160 161 161 163 163 163 163 164 165 169 169 175 175 175 175 175 175 175 175 175 175	1118 1118 1120 1120 1121 1121 1122 1125 1126 1127 1127 1131 1131 1131 1131 1131 1131
21222222222222222222222222222222222222	
27975647777777777777777777777777777777777	AAG15142 AAG39732 AAG39732 AAG39732 AAG397316 AAB207116 AAB207119 AAB32750 AAB1722 AAU03701 AAAG24065 AAM78729 AAM839931 AAB60494 AAB618010 AAB611412 AAB611
Haemog Haemog Human Arabid P. fall P. fall P. fall Arabid Arabid Arabid Human Mycoba Human Human Arabid S. trepp Borrel Borrel Borrel Fig ir Porcii Arabid Arabid Arabid Arabid Arabid Arabid S. trepp Borrel Borrel Borrel S. S. S	Arabic Arabic Arabic Arabic Arabic Arabic Arabic Arabic Arabic Human Group Human Arabic Propic Propic Propic Propic Propic Arabic Human Arabic Human Arabic Human Arabic Propic Arabic Arabic Propic Arabic
Haemophilus influe Haemophilus influe Haemophilus influe Haemophilus influe Haemophilus influe Human bone marrow Arabidopsis thalia P. falciparum EB200 P. falciparum P.	Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Human gene 10 enco Human ORFX protein Syst Group B Streptococ Human prostate spe Arabidopsis thalia Human TGFbeta protein SEQ Human protein sequ Human protein sequ Human protein sequ Human protein sequ Human ORFX protein sequ Human ORFX protein partial p falcipar SEP-GST 3' deletio Propionibacterium Human CMFX grotein Partial P falcipar BSP-GST 3' deletio Propionibacterium Human cDNA SEQ ID Arabidopsis thalia Propionibacterium Human protein Bertial P falcipar BSP-GST 3' deletio Propionibacterium Human cDNA SEQ ID Arabidopsis thalia Propionibacterium Human immune/haema Human immune/haema Human polypeptide Drosophila melanog Streptococcus pneu Human nucleoporin
339 339 340 341 342 343 343 344 344 344 344 344	300 300 300 300 300 300 300 300 311 311
<b>ຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓຓ</b>	n a a a a a a a a a a a a a a a a a a a
2210 2210 2210 2210 2220 2220 2220 2220	22222222222222222222222222222222222222
222222222222222222222222222222222222222	221 221 221 221 222 222 223 224 224 225 227 227 227 227 227 227 227 227 227
AAR39909 AAG06440 ABP05353 AAB93722 ABG05335 ABG05533 ABG05533 AAW5165 AAG09551 AAB54365 AAW51121 AAG15621 AAG73465 AAW51121 AAG15621 AAG72465 AAW51121 AAG15621 AAG17382 AAG195651 AAG17382 AAG19656 AAG173810 AAG1738100 AAG173815 AAG28205 AAG28205 AAG28205 AAG28206 ABB14736 ABB44736 ABB4473 AAG28204 ABB11062 AAG28204 ABB11062 AAG28204 ABB11062 AAG28004 ABB11062	AAG33664 AAG315918 AAG34430 AAG366164 AAG43002 AAG43002 AAG43002 AAG43002 AAG66997 AAF66997 AAF66997 AAF96997 AAF96992 AAU48915 AAW96222 AAW96222 AAW96222 AAW96222 AAW96222 AAW96222 AAW96222 AAW96222 AAW96222 AAW96223 AAW96223 AAW96223 AAW96225 AAW96226 AAW962363 AAW962363 AAW962363 AAW9821990 AAW
B. burgdorferi pc Arabidopsis thalia Human ORFX protein Human protein sequ Novel human diagno Human brain expres Novel human diagno Human brain expres Novel human diagno H. pylori GHPO 137 Arabidopsis thalia Human SEC2 protein Lactococcus lactis Mouse ependymin-li Arabidopsis thalia Herbicidally activ Sequence of Plasmo Corynebacterium gl Arabidopsis thalia Histeria monocytog Human NOV7 protein C glutamicum prote Extracellular and Listeria monocytog Fropionibacterium Arabidopsis thalia Arabidopsis thalia Human protein sequenc Human protein sequenc Human protein sequenc Corynebacterium Arabidopsis thalia	

- - - - - - - - - - - - - - - - - - -	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	G C C C C C C C C C C C C C C C C C C C
a a a a a a a a a a a a a	, o,	n a a a a a a a a a a a a a a a a a a a
22222222222222222222222222222222222222	220 2270 2271 2271 2271 2271 2271 2271 2	2447 200 200 200 200 200 200 200 200 200 200
	21 21 21 21 21 21 21 21 21 21 21 21 21 2	222223422222222222222222222222222222222
AAG9209 AAG82614 AAG4714 AAG4714 AAM41150 AAB49666 ABB54762 AAG07722 AAG07722 AAG07785 AAG0785 AAG07857	AAG46798 AAW3068 AAW3068 AAW5732 AAW5732 AAY2616 AAW5732 AAY2616 AAW5251547 ABB63477 ABB63477 ABB63468 ABG91668 ABB09066 ABB09668 ABB09066 ABB09066 ABB09066 ABB09066 ABB09066 ABB09668 ABB09066 AAB911106 AAW5283 AAW5283	AAY75089 AAY75090 AAW12020 AAW14265 AAG05470 AAW12810 AAW12810 AAW12511 AAG21514 AAG30162 AAW39364 AAG30162 AAW39364 AAG89806 ABB78988
1142 142 1757 1753 1753 1759 1759	7306083 730683 7306087 7306	00004900000000000000000000000000000000
C glutamicum ps epidermidis Arabidopsis th Human polypept Psychrobacter Lactococcus la Arabidopsis th Arabidopsis th Arabidopsis th Amino acid seq Arabidopsis th Lactococcus la Sialic acid bi	Arabidopsis thalia Arabidopsis thalia Glycerol-3-phospha Klebsiella pneumon Mitochondrial glycerol Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Drosophila melanog Novel human diagno putative P. abysis Thermus caldophilu Novel human diagno propionibacterium C glutamicum prote Human protein HP10 Chlamydia pneumoni Human TANGO 315 fo S. epidermidis ope Arabidopsis thalia Arabidopsis thalia Putative P. abyssi Physcomitrella pat Sialic acid bindin Arabidopsis thalia	Neisseria meningit Neisseria meningit Nedicago sativa ca Xylanase activity Arabidopsis thalia Autoinducer inacti Hybrid IE beta cha Arabidopsis thalia Autoinducer inacti Hybrid IE beta cha Arabidopsis thalia Hypodermin B of AT Arabidopsis thalia Chlamydia polypeptide Human polypeptide Human polypeptide Human polium perenne CCo Lolium perenne CCo Arabidopsis thalia C. glutamicum poly C glutamicum prote Class II beta chai Class II beta chai Class II beta chai Streptococcus poly Eucalyptus grandis Streptococcus poly Eucalyptus grandis Novel human diagno Class II beta chai Streptococcus poly Eucalyptus grandis Novel human diagno Rat CRIT. Rattus Lolium perenne LOC Triticum aestivum Drosophila melanog Corynebacterium gla
mnicum p pesis the ppsis the ccus la- ppsis the ppsis the ccid seq ppsis the ccid seq accid bi-	idopsis the erol-3-photosis the erol-3-photosis the character idopsis the idopsis the idopsis the idopsis the ophila mell luman diplement of the p. aby mus caldoplin human divice p. aby mus caldoplin human divice p. aby idopsis the id	sseria meningit iseria meningit ilicago sativa ca anase activity bidopsis thalia oinducer inacti orid IE beta cha bidopsis thalia oodermin B of AT amydia polypeptide an protein sequium perenne CC ium perenne II beta chai sis II beta
um prote idis ope s thalia peptide ter immo talia s thalia	s thalia -phospha phospha ial glycerol glycerol s thalia s thalia s thalia melanog n diagno n diagno n diagno n diagno cterium um prote en HP10 pnumoni O 315 fo journoni O 31	vity va ca vity vity va ca vity vity halia nacti a chalia nacti a chalia of la chalia of la con la c
511 511 512 513 516 516 519 520 520	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	4 N N N N N N N N N N N N A A A A A A A
		n
	$ \begin{smallmatrix} 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0$	
33533353355355555555555555555555555555		33333333333333333333333333333333333333
<b>.</b>		221 222 222 222 222 222 222 222 222 222
AAG24299 AAU00784 AAY08451 AAY79470 AAP70562 AAG53556 AAB90963 AAG07248 AAG46785 AAG46785 AAG46785 AAG46785 AAG46785 AAG46785 AAG46785	ABM9 7099 AAW67889 AAG05468 AAG05468 AAG20277 AAG34918 AAG43039 AAG47141 AAG247141 AAG247141 AAG2847141 AAG2847141 AAG96175 AAG96175 AAR77246 AAR77246 AAR792865 AAW60619 AAW828189 AAW95189 AAW47518 AAW60619 AAW47724 AAW60619 AAW47318	AAU00498 ABB26184 ABB66140 AAB865158 AAG53558 AAG53558 AAG653570 AAB51137 ABB67860 AAG46786 AAU3972 AAG96006 AAU351154 AAV31794 A
Arabidopsis thalia Human apoptosis pr Human apoptosis pr Maize Jabi homolog Human deubiquitina Product of ORF 4 f Arabidopsis thalia Herbicidally activ Arabidopsis thalia Arabidopsis thalia Streptococcus poly Human gene 1 encod Arabidopsis thalia	Human secreted pro Human secreted pro Arabidopsis thalia Propionibacterium Arabidopsis thalia Novel human secret Putative P. abyssi Lipase modulating Pseudomonas cepaci P. cepacia lipase Staphylococcus aur C glutamicum protee Human liver activi Drosophila melanog Human polypeptide, Human polypeptide, Human polypestide, Human polypesis thalia Arabidopsis thalia Fomato yellow leaf Tomato yellow leaf	Human TANGO 315 fo Streptococcus poly Drosphila melanog Human NS protein s Sialic acid bindin Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Macaca mulatta rha Novel human diagno Drosphila melanog Arabidopsis thalia Listeria monocytog Arabidopsis thalia Byychrobacter immo Olfactory receptor Amino acid sequenc Bacillus stearothe Drosphila melanog Heptaprenyl diphos Arabidopsis thalia I idteria monocytog

5882 5885 5885 5886 5886 5886 5886 5886	568 570 571 572 573 574 576 578 578 578 578 578	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	5 5 5 5 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5	522 523 524 525 526 526 527 528 531 531 531 531 531 531 531 531 531 531
<b>a</b> a a a a a a a a a a a a a	n n n n n n n n n n n n n n n n	<b>თ თ თ თ თ თ თ თ თ თ თ თ</b>	<b>ຑຑຑຑຑຑຑຑຑຑຑ</b> ຑ	<b>ភ</b> ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ
		· · · · · · · · · · · · · ·		
44444444444444444444444444444444444444	44444444444444444444444444444444444444	412 4412 4422 4422 4422 4422	379 380 380 387 387 398 398 407 411	370 370 370 370 370 371 371 371 371 371 371
222222222222222222222222222222222222222	21 22 23 24 25 27 27 27	22 21 22 22 23 23 23 23 23	23 23 23 24 25 27 27 27 28	222222222222222222222222222222222222222
AAY44845 AAB52864 AAB12623 AB930899 AB930973 AB930956 ABG11753 AAG14017 AAG20804 AAG30984 AAG51385	AAB079858 AAB079858 AAB079858 AAW26603 AAY20181 ABP43400 ABB90809 AAB990817 AAG30957 AAG30957 AAG44847 AAG44847 AAG44847	AAB96090 AAB58368 AAB07856 ABP41711 AAC21556 AAU56212 AAW54355 AAW54355 AAW54355 AAW54355 AAW54355 AAW54355 AAW54355 AAW54355 AAW54355 AAW54355 AAW55793 AAW557933 AAW57933	ABP27052 AAG250781 AABB3047 ABB91551 AAG81205 ABP92031 AAV92031 AAV92031 AAU36802 AAG07246 AAU20622 AAG07246 AAU20628 AAG96085 ABP27251	ABB30007 ABB20615 AAM56010 AAM68380 AAM168380 AAM103928 AAM03928 ABB98054 ABB98054 ABB98054 ABB98057 AAW72131 AAW72132
Zea m Esche Human 0772P Parti Autoa Arabi Novel Arabi Arabi Arabi Arabi Arabi Arabi	Candi Coryn Prote Guar Enter E fae Herbi Brevi C glu Arabi Human Oryza Glyci Human	Putat Lung Amino Human Arabi Propi 47 kD Human Human Human Human Human Broso Staph	Streptococc Arabidopsic Human WMPI Herbicidall Mycobacter Staphylococ Human bone Staphylococ Arabidopsic Human TRAF Human TRAF Human TRAF	Peptide Human I Lister Drosoph Drosoph Drosoph Drosoph Strept Strept Strept Stflow Safflow Human I Human I Arabidd Arabidd Arabidd
ays 3-dehydro richia coli p gene 1 encod clone 21008. al protein se ntigen diagno dopsis thalia thalia dopsis thalia dopsis thalia	Candida albicans e Corynebacterium gl Protein encoded by Guar phosphomannos Enterococcus faeca E faecalis EF090 a Herbicidally activ Brevibacterium lac C glutamicum prote Arabidopsis thalia Human cancer assoc Oryza sativa 3-dehy Human ovarian carc Zea mays 3-dehy Glycine max 3-dehy Human ovarian carc	Putative P. abyssi Lung cancer associ Amino acid sequenc Human ovarian anti Arabidopsis thalia Propionibacterium 47 kD heat shock p Human Hsp47 protei Human Hsp47 protei Herricidally activ Human heat shock p Human kynurenine a E. sgracilis fatty Drosophila melanog Staphylococcus epi	Streptococcus poly Arabidopsis thalia Human WWP1 HECT E3 Herbicidally activ Mycobacterium tube Staphylococcus epi Human bone morphog Staphylococcus aur Arabidopsis thalia Human secreted pro Human TRAF four as Arabidopsis thalia	Peptide #2658 enco Protein #2614 enco Human brain expres Human bone marrow Peptide #2610 enco Peptide #2610 enco Human peptide enco Listeria monocytog Drosophila melanog Streptococcus pneu Streptococcus pneu Streptococcus pneu Safflower plastidi Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia
5 6 6 6 6 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	6641 6641 6644 6650 6550 6550 6550	627 628 630 631 633 633 633 633 633 633	615 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	595 596 600 600 600 600 600 600 600 600 600 6
<b>ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ</b> ភ ភ	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<b>ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ</b> ភ ភ ភ	<b>თ თ თ თ თ თ თ თ თ თ თ თ</b> თ	n n n n n n n n n n n n n n n n n n n
				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
4444444 000000000000000000000000000000	44444444444444444444444444444444444444	44444444444444444444444444444444444444		44444444444444444444444444444444444444
				222222222222222222222222222222222222222
ABB95420 AAE18096 AAE18097 AAE18099 AAE18100 AAE18100 AAE18101 AAW307711 AAW377798 AAW88249 AAW88249 AAW873472	AAG35696 AAG37219 AAY92050 AAY92050 AAY57280 AAY477726 AAY44406 ABB63749 AAU69960 AAU69960 AAU69960 AAB661885 AAM01294 AAM01294 AAM01294 AAM01294 AAM01294 AAM01294 AAM01294	AAG50524 AAG92676 AAB93036 AAB93036 AAB772130 AAG17562 AAG20803 AAG20803 AAG20803 AAG20803 AAG20803 AAG20803 AAG20803 AAG20803	AAW18098 AAW18098 AAG17563 AAY81444 AAY76806 AAW176806 AAW176806 AAW1705 AAG30955 AAG30955 AAG47134 AAY101943 AAY101943 AAY101943 AAY101943 AAY101943	ABB66680 AAV20465 AAV29179 AAY18026 AAAY18026 AAR32656 AAR32656 AAR32656 AAR32656 AAR32656 AAR3274 AAR33774 AAR33774 AAR33577
Human P1000C SEQ I Human P1000C STQ I Human P0P1F12-GTC1 Human TMPRSS2 prot Human 20P1F12/TMPR Human 20P1F12/TMPR Human 20P1F12/TMPR Human 20P1F12/TMPR Human biquitin-sp LfKCS3 condensing Arabidopsis very l Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Arabidopsis Thalia	Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia HrPCa6/7 polypepti Ovr115 homolog pro Human tumour suppr Human 2011F12-GTC2 Drosophila melanog Human transmembran Human proteate cDN Human serine prote Human transmembran p1000C amino acid Prostate cancer-as Human prostate cancer-as Human prostate cancer-as Human transmembran p1000C minoscate cancer-as Human p1000C scate cancer-as Hum	Arabidopsis thalia Arabidopsis thalia C glutamicum prote Human protein sequ Corynebacterium gl Safflower plastidi Arabidopsis thalia Arabidopsis thalia Arabidopsis thalia Drosophila melanog Lymphona associate Escherichia coli p Human TMPRSS2 prot	Xenopus alpha-signal Arabidopsis thalia Human smad5. Home Human Smad1 protei Human Smad1 protei Human Smad1 protei Novel human neopla Arabidopsis thalia Amino acid sequenc Enterococcus facea E faecalis EF090 p Escherichia coli p Scherichis thalia	Drosophila melanog Amino acid sequenc Amino acid sequenc Murine DP-Jalpha i C.melassecola ATCC C.glutamicum prote Brevibacterium gl Human ovarian anti Arabidopsis thalia Putative P. abyasi Yeast prephenate d Human protein sequ Human GTP-binding Arabidopsis thalia Human GTP-Xinding Arabidopsis thalia Human GTP-Xinding Arabidopsis thalia

	738 739 740	736 737	735	733 734	731	730	728 729	727	725 726	724	723	721	720	718	717	716	714	713	712	710	709	708	707	705	704	702 703	701	700	698	697	5 6 9 5 6 9 5 6 9 5	694	693	691	690	688	687	686	684 4.	683	682	680	679	678	677	675	674	672	671	669	668
,	თთთ	თთ	, on (	ע פע	თ თ	, n c	ח מ	o 0	n on	. O	თ თ	יסי	on (	ח ס	, or	o (	ח ס	, o	σ (	ካ ው	, o	o (	ησ	<b>,</b> 0	σ 0	ካ ጣ	σ,	ח ס	n 01	σ (	ח מ	ō	თი	) O	σ (	n 01	6	on 0	ש פ	0	σ, ο	ησ	, o	σ,	ው ወ	, O	თი	ע ס	თ	ח ט	თ
	N N N 0 0 0																														•					•	•		•				•			•		•		•	•
	627 629	622	613	598	590	588	n 50 80	583	л 55 0 6	572	5 0 5 0 5 1	563	555	ת ת ת ת	553	54.5	537	531	530	526	526	525	л U 2 2 1	519	518	517	516	513 513	512	512	512	511	511	510	510	507	507	506	л U	506	506	л U	506	506	J U	506	506	л (5 0 0 0	506	506	505
	22 0 22 0	222	22	2 22	222	23	3 N 3 N	22	20	23	23 6	23	22	3 N	21	22	ر د د	22	22	22	22	22	2 2	222	22	2 22	20	2 2	23	22	3 <u>1</u> 8	22	2 4	222	22	2 22	22	23	ว ผ	23	23	2 2	23	23	2 2	23	23	2 22	23	27	16
	AAW85596 AAW85597 AAU32412	AAM3	ABGO	AABA	AAG9	AAM4	AAB9	AAU4	AAY2	ABP2	ABP3	AAU7	AAU3	ABB9	AAY9	AAM4	AAW9	ABB6	AAG6	AAB9	AAE1	ABB6	AAGI	ABB5	AAU3	AAG6	AAYO	ARRO	ABB9	AAU3	AAW3	AAG6	AAG6	AAB8	AAG9	AAB6	ABG2	AAEI	AAEI	AAE1	AAEI	AAEI	AAE1	AAE1	AAEI	AAE1	AAE1	AAE1	AAE1	AAR9	AAR7
	5596 5597 2412	9596	8163	0043	3601	9551	6513	1035	3622	7902	5544	4557	6493	5086	7004	0980	3431	0201	1049	3132	2634	1604	7581	2490	5880	5240	7735	7726	1770	5639	5704	3123	3119	1890	3044	0098	5482	7850	7848	1627	1626	7622	7620	7619	7618	7615	7614	7611	7608	5594	172
;	Huma: Huma: Nove	Dro Hui	NO	Co	Hur.	Act	Put	Pro	Pro	St	SE	Hur	Pae	Hur	s.	Hun	Dr.	Dro	Hun	Hun	Hun	Dro	M C	Esc	Sta	Cel	Hun	Not	Hei	Hac	Sna	Cit	Cit	Zir	0	Hui	Nov	Alt	Alt	A.	A.	A.	Α.	Α.	A A	A.	A	> ≯	Ara	Ara	Con
	nan GA nan GA vel hu	E G	vel hu	ryneba	giutam man pr	Actinoplanes sp a	tative	pioni	otein	reptoc	reptoc	nan ki	Pseudomonas aerugi	nan po	cerev	nan po	thall	psophi	nan de	nan pr	nan ge	osophila mel	doptar	heric	Staphylococcus aur	oiv	nan br	nan tu	bicid	mophi	pdrag	n sn.z	Citrus unshiu UDP-	nc fin	glutam	nan tr	rel hu	ernat	ernat	thali	A. thaliana FAE1-	thali	thali	thali	thali	thali	thali	thali	dopidop	Arabidopsis fatty	densi
	GABA-A: GABA-A: human se	la me	man d	cteri	otein	anes	P. al	bacter	encode	occus	coccus poly	nesin	nas at	Lypept	isiae	lypept	ana El	la mel	nbidu	otein	ne 1 e	la mel	balis	hia co	coccus	ision	east-	man pr	ally a	lus ir	on fla	nshiu	nshiu	ger pr	icum F	anspor	man di	ive ve	ive ve	ana FF	ana FA	ana FF	ana FF	ana FA	ana FA	ana FA	ana FA	ana FA	sis thalia	gis fa	ng enz
	recep recep	lanog tide	iagno	im 91	prote	sp ac	oyssi	rium	ed by	Atod	VIOG	moto	erugi	tide	esse	ide	an pr	lanog	itini	sequ	encod	lanog	MC11	oli p	aur	cont	speci	of Ai	activ	iflue	avono	-dan	-400	Cotei	prote	port pr	agno	rsio	rsio	E1-B	E1-B	EI-B	E1-B	E1-B	H1-B	E1-8	E1-B	E1-B	lalia	tty	:yme
	811 812 813	809	808	806	808	803	801	800	798	797	796	794	793	791	790	789	787	786	785	783	782	781	780	778	777	775	774	772	771	770	768 769	767	766	764	763	761	760	759	757 758	756	755	753	752	751	750	748	747	745	744	742	741
•	თთთ	თ თ	. 0. 0	<i>v</i> 0	თთ	. o. c	ע ע	თი	n on	, O	თ თ	, o	o 0	nσ	, o	თ (	ካ ው	6	თი	ח ס	, o	თი	ח מ	n 01	σ 0	ש פ	σ,	n o	, O	σ (	ת ע	, O	on o	n 01	თი	n 01	σ	თ ი	ת מי	, o	თი	ກ σ	, o	σ,	თ თ	n 01	თ (	ח מ	თ	<b>አ</b> ወ	σ
	22. 20.00 20.00																																																		
	85 85 4 4	841 843	836	833	833	823	821	821	8 1 2	810	805	804	803	796	796	795	797	785	783	776	755	753	752	749	749	748	747	739	739	733	715	708	706	691	689	687	687	684	7 E	680	677	675	666	662	662	654	654	0 A A	645	645 645	. 638
	2 2 2 2 0		22	223	21	22	2 2	23	2 2	23	22	18	22	3 K	23	23	2 2 2	21	21	2 2	22	22	2 6	23	23	2 22	23	2 2 2	22	22	2 22	20	23	3 23	22	3 N	21	21	2 6	20	22	2 6	22	22	19	222	21	2 22	22	19	22
	AAY30948 AAY30949 AAY95074	196 933	AAE01969	ABP30898	ABB12554	ABB61359	ABB47412	AAM50348	AAM40932	ABP35711	AAU47293	AAW13387	ABB59443	ABB04588	ABG61593	AAM50347	ABG14278	AAG51466	AAG51467	AAY81394 ARG29124	ABG21163	AAE01967	ABBU48/1 AAM39146	ABB04870	ABB04869	AAB46716	ABP25975	AAG68173 ABP30271	ABG16477	AAB50048	ABG27848	AAY13452	ABG61611	ABG61612	AAM41383	ABB59384	AAY78981	ABB57967	AAW36/94	AAY13451	AAU36507	ABB90767	ABB65593	AAU35797	AAW98677		AAY53013	AAE01926	AAE01903	AAW42084	ABB70740
													Drosophila melanog														Streptococcus poly						Human DPRP-3 splic												H. pylori GHPO 564						

889 889 888 888 888 886	875 876 877 878	872 873 874	859 870 871	868 868	9665	864 864	862	860	0 60 C	856 857	80 00 4 00 4 00	853	851	844 95 95 95 95 95 95 95 95 95 95 95 95 95	847	845	843	841 842	839 840	838	836	0 00 0 0 00 0 0 00 0	832	830 831	829	827 828	826	824 825	823	822	820	819	817 919	816	814 815
<b>თთთთთთ</b> თთ	n on on on	<b>000</b>	თთσ	<b>,</b> o, o	. თ თ	. თ თ	თთ	. თ ძ	n on 0	n 01	თ თ	ი ი		n on o	n on c	n on c	ט ט	თთ	ი ი	0 0		, o, c	ח סי	თთ	σ.	<b>თ</b> თ	0	<b>თ</b> თ	0	<b>თ</b> თ	0	თ ი	n or	σ, α	ע ע
00000000000000000000000000000000000000										•							•						•		٠								•		
1246 1250 1257 1325 1325 1337 1362 1373	1192 1192 1210 1210	1185 1185 1192	1174 1174 1178	1151	1148 1148	1148 1148	1119	1105	1056	1046	1014	1000	999	997	999	978	971	967 969	933 946	932	930	922	921	920 921	914	914 914	914	911 911	909	904	903	899	885	884	956 078
19																																			
AAU33228 ABB12254 AAW85281 AAO21705 AAR85203 AAW85203 AAW85203 AAW85203 AAW85203	PAU04591 PAB82349 PAE11767 PAE15798	AAW98508 AAU35873 AAY56967	ABB83490 ABB61704 AAY71311	ABP38397 ABP30965	ABP30964 ABP30969	ABB50283 AAB95836	AAB97825 AAE14716	ABB58500	ABB69318	ABB54658	AAO17503 AAB94063	AAM50353 ABG20445	ABG61893	ABB80927	ABP35627	ABB59935	ABB59599	AAW93621 ABB98216	ABB09707 AAU87120	ABB09706	ABB09709	ABB05708	ABB09711	AAB66456 AAY32297	ABP30968	AAB99203 ABP30896	AAB12552	AAW74723 ABP61838	AAG42121	ABB62853	ABB62159	769	693	14	AAG42122 AAY96997
Novel P Human s C. albb Human s huDEP Murine Mouse d Multipl	Human Human Human Human	H. py Helico Human	Human Droso; Human	Sta	Clo	HOS Hum	The The	Dro	Dro	Lac	C e	Nov	Pro	Mou	Pun	Dro	Dro	Hum Chl	Seq	Seq	Ami	Human	Seq	Pro	Нур	Human 0772P	Human	Huma	Ara	Dro	Dro	Novel	AMM	Her	Ara
numan 33-12 cans secret HO p/CIP p/CIP schae	Nogo I	Lori Dbact	uman kinase. Hom rosophila melanog uman neurite grow	Staphylococcus epi Protein with seque	ncated version ne FLJ14303.	HOST-1 ovarian tum Human protein sequ	rmus aquaticus	Drosophila melano	Drosophila melanog	Lactococcus lactis	- =	Human calcium act: Novel human diagno	rostate cancer-as	Mouse BCO2 ortholo	Fungal ZBC protein	sophila melano	sophila melano	Human CD13/aminope	Sequence of H4P he Novel central nerv	tein of Mezi (M	Amino acid sequenc	an signal trans	Sequence of H4P he	n polycomb pro	Hypothetical prote	an ovarian tumo 2P protein. Ho	an ovarian carc	<b>→</b>	bidopsis thalia	sophila melanog	sophila melano	huma	hromosome	rbicidally activ	hali
9554 9554 9554 9558 9587	948 949 950 951	945 945 946	942 943 944	940 941	939 939	936 937	934 935	933	930	929	927	925 926	924	922	919 920	918	916	914	912 913	911	606	907	905	903 904	902	. 900	899	897	896	894	893	891	890	889	887
ហហហហហហហ	1 in in in in	נח נח נח ו	տտտ	1 (7) (7)	in in	<b></b>	<b></b>	Φ.σ	. თ. თ		<b>.</b>	<b>m</b> m			· • •		<b>.</b>		<b></b>	<b>.</b>	Φ.		<b>.</b>	<b>.</b>	<b>.</b>	<b>.</b> .	Φ.		Φ.		Φ.	<b>.</b>		<b>.</b>	<b>.</b>
	່ເພີ່ພີພີເຄື	ພ່ພພ່	ມີພີພ	່ພໍພໍ		N)																													
					0, 0,		ω κ	7 5	. 0. ~	101	- w	U1 P		, ω ι	7 7		. 6	יוט נג	U1 C	ωο	ωκ	ω υ	100	7 6	on t	ω N	ω.	n Oi	12 4	<u> </u>	ω.	عبر س	- 45	7	э сь
222 22 22 22 22 22 22 22 22 22 22 22 22																																			
ABP19450 AABB189 AAB75737 ABP15980 ABP21679 ABP21689 ABP21689 ABP21588	AR89605 AW33442 BP13156 BP15865	AY70166 AB37561 AR46699	AR34089 AW43157 AR35827	AR34037 AR34088	AR34098 AR34036	ABB65885 AAU05396	AG84992 BB71609	AW84272 BB57815	AY49938	AB82213	AE03657	AE19888 AE20788	AE20477 AR22154	AW71556	BB57791	AM40883	AU75489	BG20279	BG20278 BB58710	BB60066 AB15945	AY06079	AW72419	AM25750	AG53004 AU84350	AY34695	AY06078	AY06077	AB42658	BB91548	BG66725	BB54925	AE14685	AY41109	BB57771	BB65329
							•												•																
HIV B62 super moti CD66 peptide #7. HLA class I bindin HIV A24 super moti HIV A03 motif pol HIV A03 motif pol HIV A03 motif pol	Prostate specific Oligopeptide 22 cl HIV A02 super moti HIV A24 super moti	F. heparinum hepar CDB beta chain rid Monomeric peptide	Peptide which bind Anti-melittin pept T7 phage coat prot	Peptide which Antigen to ge	Antigen to generat Antigen to generat	Drosophila melanog Human titin (conne	Shrimp white Drosophila me	A DNA-depende Drosophila me	Human DNA-act	Polyketide sy	Human extrace	Hepatitis C virus Rat C3b/C4b comple	NAMBV Hutch c	Helicobacter polyp	Drosophila me	Human polypeptide	S. aureus antigeni	Novel human diagno	Novel human diagno Drosophila melanog	B. coli proliferat	Human actin-bindin	Rice bacterial lea	Human protein sequ	Arabidopsis thalia Protein MYH11 diff	C. pneumoniae	Bovine actin-	Human actin-b	Human ORFX OR	Herbicidally activ	an no		Human protocadners	H	Drosophila melanog	Drosophila melanog

```
RESULT 1
ABG62118
ID ABG62118
AC ABG6
XX ABG6
XX Prot
XX Prot
XX Prot
XX Prot
XX Prot
XX Pon

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sun Y,
                                                                                                                                                                                   06-NOV-2001; 2001WO-US47001
                                                                                                                                                                                                                                                                                          WO200238810-A2
                                                                                                                                                                                                                                                                                                                                                                                         Prostate specific polypeptide; metastasis; prostate cancer; cancer; non-cancerous prostate disease; gene therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human prostate specific polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ABG62118 standard;
                                                                                                                                                                                                                                         16-MAY-2002
                                                                                 (DIAD-) DIADEXUS INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Recipon H, Chen S,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                               2000US-246109P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ABP13598

ABP1651

ABP23565

ABP23565

ABP23566

ABB23566

ABB23676266

ABB96945

ABB97131

AABB97131

AABP21450

ABP23577

ABB23577

ABB23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY66270
AAY66347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ABP24308
AAM22408
AAM23115
AAB75708
                             Liu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAW00682
AAY86625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAG80666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ABB97130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
                           Ċ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #51.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Telomerase peptide
HLA-A2-binding HIV
HLA-A28-binding HI
HIV A02 super moti
HIV A02 super moti
HIV B62 super moti
HIV B61 super moti
HIV A11 motif pol
HIV A11 motif pol
Human Apri-214 tryp
Mycoplasma genital
Human lens thioltr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Human tumour antig
Human Tumour antig
ICAM CD54 (38-48)
HJ loop peptide K1
HIV A03 super motif
HIV A03 motif pol
HIV A03 motif pol
HIV A11 motif pol
HIV A13 motif pol
HOMAN CD54 (37-48)
ICAM CD54 (37-48)
ICAM-1 beta subuni
Cyclic peptide use
HIV A03 motif pol
HIV A03 motif pol
HIV A03 motif pol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human tumour antig
Human tumour antig
Human tumour-assoc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Peptide comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HIV peptide SEQ ID HIV peptide SEQ ID SEQ ID
```

```
RESULT 2
ABP333999
IID 3ABP3
XX ABP3
XX ABP3
XX Huma
X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 8
                                                                                                                                                                                                                                                                                                                                                                                                                     Human; ORF; open reading frame; ORFX; drug screening; diagnosis; disease monitoring; cytokine; cell proliferation; cell differentiation; immune modulation; haematopoiesis regulation; tissue growth; angiogenesis; activin; inhibin; chemotactic; chemokinetic; haemostatic; thrombolytic; tumour inhibition; bodily characteristic; fertility; behaviour; cancer; proliferative disorder; neurological disorder; cardiovascular disease; immune system disorder; neurological disorder; tissue growth disorder; tissue regeneration disorder; diabetes mellitus; hypothyroidism; cholesterol ester storage disease; infection; vulnerary; vasotropic; antipsoriatic; antidiabetic; cytostatic; nootropic; neuroprotective; antiatheroscleroric; anticoagulant; thrombolytic; cardiant; hypotensive; antithyroid; antiinflammatory; immunomodulator; dermatological; analgesic; virucide; antibacterial; fungicide.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              useful: for determining non-cancerous prostate disease, by measuring their expression levels and/or structural alterations; for determining the sample that has prostate tissue-like characteristics or is a prostate tissue; as an element in an array or a multi-analyte test to recognise expression patterns associated with prostate cancer and other prostate related disorders; and as elements in a computer program for pattern recognition of prostate disorders. (I) and (II) are useful for producing engineered prostate tissue for treatment and research. (II) is useful for producing transgenic animals and cells and also in gene therapy. This is the amino acid sequence of the prostate specific nucleic acid described in the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention describes an isolated prostate specific polypeptide (I) are nucleic acid (II) encoding it and are useful for diagnosing and monitoring the presence and metastases of prostate cancer in a patient. (I), (II) and an antibody to (II) are useful in quantitative and qualitative diagnostic assays and methods for detecting, diagnosing, monitoring, treating, staging and predicting cancers in humans having cancer or may have the risk of developing cancer. (I) and (II) are also
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 11; Page 242; 267pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        New prostate specific polypeptides and polynucleotides useful for detecting, diagnosing, monitoring, treating, staging and predicting cancers in humans having cancer and non-cancerous prostate disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 2002-471559/50.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human ORF2372 protein, SEQ ID NO:4744.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABP33399 standard; Protein; 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence
                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                          WO200190366-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              31 VREPKIEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VREPKIEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
8; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.7%; Score 8; DB ilarity 100.0%; Pred. No. 3. Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and
```

24-MAY-2000; 2000US-206690P 24-MAY-2001; 2001WO-US17076

(CURA-) CURAGEN CORP

```
RESULT 3
AAG12854
ID AAG1
XX
AC AAG1
XC AAG1
XX
AC AAG1
XX
DT 17-C
XX
DE Arah
XX
Prot
KW Prot
KW hybi
KW tert
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequences ABP31028-ABP35561 represent 4534 novel human proteins CC designated ORF (open reading frame) 1-4534, and sequences ABN75054-CC ABN79597 represent cDNAs encoding them. The invention also encompasses CC polypeptides at least 80% identical to the ORF1-ORF4534 (collectively CC referred to as ORFX) proteins, polymucleotides at least 85% identical to the ORF2-ORFX proteins, polymucleotides at least 85% identical to the ORF2 proteins of the ORFX proteins, antibodies gpecific for ORFX proteins, methods of detecting ORFX proteins, antibodies and CC polymucleotides, methods of screening for modulators of ORFX expression or activity, and methods of screening for modulators of ORFX expression or CC activity, and methods of screening individuals for a predisposition to an ORFX-associated disorder. The ORFX proteins of the invention have a wide CC range of bhological activities, such as cytokine, cell proliferation, the cell differentiation, immune modulation, haematopolesis regulation, cell differentiation, andiogenesis, activin or inhibin activity, chemotactic/ CC receptor/ligand, antiinfelammatory activity, thmour inhibition activity, chemotactic/ CC receptor/ligand, antiinfelammatory activity, thmour inhibition activity, chemotactic/ CC receptor/ligand, antiinfelammatory activity, thmour inhibition activity, completed and antibodies may be used in the treatment of cancers, completed and antibodies may be used in the treatment of cancers, completed and antibodies may be used in the treatment of cancers, complete acids and antibodies may be used and Alzheimer's disease, caradiovascular diseases, immune system disorders, disorders related to CC cardiovascular diseases, immune system disorders, disorders related to CC cardiovascular diseases, immune system disorders, and cholesterol ester complete cacids may additionally be used to protein and cholesterol ester storage disease, and infectious diseases caused by viral, bacterial, complete and activity of ORFX complete and complete activity of ORFX complete and compl
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                  र्
                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Novel human polypeptides and polynucleotides useful for diagnosing, preventing and treating cardiovascular disease, neurodegenerative, hyperproliferative disorders and disorders related to organ transplantation
                               Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter;
                                                                                       Arabidopsis
                                                                                                                            17-OCT-2000
                                                                                                                                                                                              AAG12854 standard; Protein; 139 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 10; Page 1439; 2508pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB; ABN77425.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 2002-106200/14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Leach MD,
                       termination
                                                                                                                                                                                                                                                                                                                     170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                        Local Similarity hes 7; Conserv
                                                                                                                                                                                                                                                                                    99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Shimkets
                                                                                                                                                                                                                                                                                                                                                                                                                              74
                                                                                      thaliana protein fragment SEQ ID NO: 12126
                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                              ă,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RΑ;
                                                                                                                                                                                                                                                                                                                                                      3.2%; Score 7; DB 2:
100.0%; Pred. No. 30;
:ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                         23;
                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                       Length 74;
                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                      Gaps
   21 MAY 1999

22 MAY 1999

25 MAY 1999

27 MAY 1999

28 MAY 1999

01 JUN 1999

01 JUN 1999

07 JUN 1999

07 JUN 1999

10 JUN 1999

10 JUN 1999

16 JUN 1999

16 JUN 1999

17 JUN 1999

18 JUN 1999

21 JUN 1999

22 JUN 1999

23 JUN 1999

24 JUN 1999

23 JUN 1999

23 JUN 1999

23 JUN 1999

23 JUN 1999

24 JUN 1999

23 JUN 1999

23 JUN 1999

24 JUN 1999

25 JUN 1999

27 JUN 1999

28 JUN 1999

29 JUN 1999

29 JUN 1999

29 JUN 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14-MAY-1999;
14-MAY-1999;
14-MAY-1999;
14-MAY-1999;
18-MAY-1999;
20-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30-APR-1999
30-APR-1999
04-MAY-1999
05-MAY-1999
06-MAY-1999
06-MAY-1999
07-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-APR-1999;
16-APR-1999;
19-APR-1999;
21-APR-1999;
23-APR-1999;
23-APR-1999;
23-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-FEB-1999;
05-MAR-1999;
09-MAR-1999;
23-MAR-1999;
25-MAR-1999;
29-MAR-1999;
01-APR-1999;
06-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               14-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000EP-0301439
9908-0130449.
9908-0130891.
9908-0130891.
9908-0132484.
9908-0132485.
9908-0132485.
9908-0132486.
9908-0132486.
9908-0134218.
9908-0134218.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134219.
9908-0134229.
9908-0134229.
9908-0134229.
9908-0134229.
9908-0134229.
9908-0134239.
9908-0134239.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
9908-0139459.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0128234.
99US-0128714.
99US-0129845.
99US-0130077.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0126264.
99US-0126785.
99US-0127462.
```

30-JUN-1999 01-JUL-1999 01-JUL-1999 01-JUL-1999 06-JUL-1999 08-JUL-1999 09-JUL-1999 112-JUL-1999 113-JUL-1999 114-JUL-1999 115-JUL-1999 116-JUL-1999 116-JUL-1999

> 3-0141287. 3-0141842. 3-0142154. 3-0142055.

19-JUL-1999; 19-JUL-1999; 19-JUL-1999; 19-JUL-1999; 19-JUL-1999; 19-JUL-1999;

```
밁
                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                            15-SEP-1999
20-SEP-1999
20-SEP-1999
22-SEP-1999
23-SEP-1999
24-SEP-1999
24-SEP-1999
04-OCT-1999
05-OCT-1999
07-OCT-1999
                                                                                  Protein identification; signal transduction pathway; metabolic hybridisation assay; genetic mapping; gene expression control; termination sequence.
                    06-SEP-2000
                                                                                                                          Arabidopsis thaliana protein fragment
                                                                                                                                                17-OCT-2000
                                                                                                                                                                                         AAG12853
25-FEB-2000; 2000EP-0301439.
                                         EP1033405-A2
                                                              Arabidopsis thaliana
                                                                                                                                                                                                                                                                155
                                                                                                                                                                                                                                            74
                                                                                                                                                                                                                                                        ADDAEGK
                                                                                                                                                                                                                                            ADDAEGK
                                                                                                                                                                                                                                                                                    Similarity 7; Conserv
                                                                                                                                                                                         standard;
                                                                                                                                                                                                                                                                                    3.2%; Scilarity 100.0%; F
Conservative 0;
                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                161
                                                                                                                                                (first
                                                                                                                                                                                                                                                                                                                            99US-0154018
99US-0154019
99US-0155485
99US-0155485
99US-0156458
99US-0156458
99US-015625
99US-015625
99US-015625
99US-015625
99US-0158322
99US-0158323
99US-0158323
99US-0159233
99US-0159231
99US-0159231
99US-0159331
99US-0160767
99US-0160767
99US-0160768
99US-0160814
99US-0161406
                                                                                                                                                                                         Protein; 141
                                                                                                                                                entry)
                                                                                                                                                                                                                                                                                     Score 7; DB 2; Pred. No. 54; 0; Mismatches
                                                                                                                                                                                          B
                                                                                                                             SEQ ID
                                                                                                                                                                                                                                                                                                DB 21;
                                                                                                                             NO: 12125.
                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                         Length 139;
                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                      0
                                                                                             pathway;
promoter;
                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                       0
```

99US-0142390.
99US-0142390.
99US-0142977.
99US-0144005.
99US-0144085.
99US-0144085.
99US-0144325.
99US-0144331.
99US-0144333.
99US-0144333.
99US-0144333.
99US-0144333.
99US-0144814.
99US-0144814.
99US-0144814.
99US-0145086.
99US-0145086.
99US-0145086.
99US-0145086.
99US-0145086.
99US-0145086.
99US-0145218.
99US-0145218.
99US-0145218.
99US-0145218.
99US-0145218.
99US-0145218.
99US-0145218.
99US-0145218.
99US-0145218.
99US-014723.
99US-014723.
99US-014723.
99US-014723.
99US-014723.
99US-014723.
99US-014723.
99US-014990.
99US-014990.
99US-014990.
99US-014990.
99US-0151086.
99US-0151086.
99US-0151086.
99US-01510884.
99US-015133.
99US-015133.
99US-015133.
99US-015133.
99US-015133.
99US-015133.
99US-015133.

20-JUL-1999
20-JUL-1999
20-JUL-1999
21-JUL-1999
21-JUL-1999
22-JUL-1999
22-JUL-1999
22-JUL-1999
22-JUL-1999
23-JUL-1999
23-JUL-1999
23-JUL-1999
27-JUL-1999
27-JUL-1999
27-JUL-1999
27-JUL-1999
27-JUL-1999
28-JUL-1999
29-AUG-1999
20-AUG-1999
20-AUG-1999
20-AUG-1999
20-AUG-1999
21-AUG-1999

**************************************	PRRX
25-HAR 1999 01-APR 1999 06-APR 1999 16-APR 1999 11-APR 1999 11-APR 1999 11-APR 1999 11-APR 1999 11-APR 1999 11-APR 1999 11-APR 1999 11-APR 1999 11-APR 1999 11-MAY 1999 11-UN 1	9999
99US-0126264 99US-0126785 99US-0127462 99US-0127462 99US-0128714 99US-0130449 99US-0130449 99US-0130404 99US-0131449 99US-0132485 99US-0132486 99US-0132486 99US-0132486 99US-0134761 99US-0134761 99US-0134761 99US-0134761 99US-0134761 99US-0134761 99US-0134761 99US-0139461 99US-0139461 99US-0139453 99US-0139461 99US-0139461 99US-0139461 99US-0139461 99US-0139461 99US-0139461 99US-0139461 99US-0139461 99US-0139463 99US-0139461 99US-0139461 99US-0139461 99US-0139461 99US-0139462 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-0139463 99US-013965 99US-0140823 99US-0140823 99US-0140823 99US-0142893 99US-0142893 99US-0142893	99US-0121825. 99US-0123180. 99US-0123548.
	מק מק מק
16. JUL 1999 19. JUL 1999 20. JUL 1999 21. JUL 1999 22. JUL 1999 22. JUL 1999 22. JUL 1999 23. JUL 1999 23. JUL 1999 27. JUL 1999 27. JUL 1999 28. JUL 1999 29. JUL 1999 20. AUG 1999 20. AUG 1999 21. AUG 1999 22. JUL 1999 23. JUL 1999 24. AUG 1999 25. AUG 1999 26. AUG 1999 27. AUG 1999 27. AUG 1999 28. AUG 1999 29. AUG 1999 20. AUG 1999 21. AUG 1999 21. AUG 1999 22. AUG 1999 23. AUG 1999 24. SEP 1999 25. AUG 1999 26. AUG 1999 27. AUG 1999 27. AUG 1999 28. SEP 1999 29. SEP 1999 29. SEP 1999 20. SEP 1999 21. SEP 1999 22. SEP 1999 23. SEP 1999 24. SEP 1999 25. SEP 1999 26. SEP 1999 27. SEP 1999 28. SEP 1999 29. SEP 1999 29. SEP 1999 20. SEP 1999 20. SEP 1999 20. SEP 1999 21. SEP 1999 22. SEP 1999 23. SEP 1999 24. SEP 1999 25. SEP 1999 26. SEP 1999 27. SEP 1999 28. SEP 1999 29. SEP 1999 29. SEP 1999 20. SEP 1999	2-JUL-199 3-JUL-199 4-JUL-199 5-JUL-199
99US-0144333 99US-0144335 99US-0144333 99US-0144333 99US-0144335 99US-0144335 99US-0144335 99US-0144335 99US-0144884 99US-0145086 99US-0145086 99US-0145087 99US-0145214 99US-0145218 99US-0145218 99US-0145218 99US-0145218 99US-0145218 99US-0145218 99US-0146386 99US-0147204 99US-01510804 99US-01510804 99US-01510804 99US-0151303 99US-0151303 99US-0151303 99US-0154313 99US-0154865 99US-0154865 99US-0154865 99US-0154865	9US-01.

3-0156596. 3-0157117.

```
RESULT 5
AAW220ZI
AAW220ZI
XX AAW2
XX AAW2
XX AAW2
DT 09-J
DT 09-J
XX Cytc
CKW Cytc
KW ider
KW ider
KW diae
XX Cytc
KW diae
XX Heli
XX Heli
XX O9-J
PF 06-J
PF 06-J
PR 07-J
PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             22-OCT-1999;
25-OCT-1999;
25-OCT-1999;
25-OCT-1999;
26-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       18-OCT-1999;
21-OCT-1999;
21-OCT-1999;
21-OCT-1999;
21-OCT-1999;
21-OCT-1999;
21-OCT-1999;
22-OCT-1999;
22-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  26-OCT-1999;
26-OCT-1999;
28-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-OCT-1999;
14-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13-OCT-1999
14-OCT-1999
                                                                                                                                                                                                                             Cytoplasmic; vaccine; prevention; treatment; identification; binding compound; bacterium; bacteria; inhibitor; duodenal ulcer disease;
                                                                                                                                                                                                                                                                                           H. pylori
                                                                                                                                                                                                                                                                                                                                                                                      AAW20201 standard; Protein; 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14-OCT-1999;
14-OCT-1999;
                                              01-APR-1996;
07-JUN-1995;
                                                                                                                       19-DEC-1996
                                                                                                                                                    WO9640893-AL
                                                                                                                                                                                    Helicobacter
                                                                                                                                                                                                                                                                                                                           09-JUL-1997
                                                                                                                                                                                                                                                                                                                                                        AAW20201;
                 (ASTR ) ASTRA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3-OCT-1999;
3-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDAEGK 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDAEGK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7; Conserv
                                                                                                                                                                                                                                                                                             secreted or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                    pylori
                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0160768
99US-0160770
99US-0160814
99US-0160815
99US-0160980
99US-0160980
99US-0161404
99US-0161405
99US-0161406
99US-0161360
99US-0161360
99US-0161361
99US-0161361
99US-0161361
99US-0161361
99US-0161361
99US-0161361
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0159637.
99US-0159584.
99US-0160741.
99US-0160767.
99US-0160768.
99US-0160770.
                 АВ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -Sn66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S066
S066
S066
S066
S066
S066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sn66
                                              96US-0630405.
95US-0487032.
                                                                                          96WO-US09122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3-0159294.
3-0159295.
3-0159329.
3-0159330.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -0158369.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         င္ပဲ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -0158232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.2%; 5c.
100.0%; Pr
                                                                                                                                                                                                                                                                                           periplasmic protein,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           s; Score 7; DB 2
s; Pred. No. 55;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                      A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB
55;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21;
                                                                                                                                                                                                                                                                                             20415937.aa
                                                                                                                                                                                                                             infection; envelope;
life cycle; activator;
chronic gastritis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 6
AAG12852
   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105
```

```
This sequence represents a H. pylori secreted or periplasmic protein.
The protein may be used in a vaccine to prevent or treat H. pylori
infection or to identify H. pylori polypeptide binding compounds,
useful as potential H. pylori life cycle activators or inhibitors.
The genomic sequence of H. pylori (ATCC 55679) was determined from
overlapping contigs generated by mechanically shearing the bacterial
coverlapping contigs were analysed for ORF of at least 180 nucleotides,
and the predicted coding regions defined by computer evaluation. To
identify likely H. pylori antigens for vaccine development, the amino
acid sequences predicted from various ORF were analysed for significant
chomology to other known or exported membrane proteins. Having identified
and determined the sequences of interest, particular regions can be
isolated from H. pylori by PCR amplification for recombinant polypeptide
production, e.g. in E. coli hosts.
                                                                                                                                                                                                                                                                                                                                                                                                     Helicobacter pylori nucleic acid sequences and related polypeptide(s) - useful for vaccines to treat or prevent H. pylori infection, and to detect Helicobacter
                                                                                                                                                                                                                                                                                                                                                                  Claim 72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1997-052306/05.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Berglindh
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ċ,
                                                                                                                                                                                                                                                                                                                                                                  Page 415-16; 1481pp;
146
AΑ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mellgaerd BL;
                                                                                                                                                                                                                                                                                                                                                                  English.
```

Query Match 33 EPKIELA Local EPKIELA l Similarity 7; Conserv Conservative 111 39 3.2%; Score 7; DB: 100.0%; Pred. No. 56 Live 0; Mismatches DB 18; 0 Length 146; Indels 0,

0;

AAG12852 standard; Protein; 148 17-OCT-2000 AAG12852; (first entry)

Arabidopsis thaliana protein fragment SEQ ID NO: 12124.

protein identification; signal transduction pathway; metabolic pathway; hybridiaation assay; genetic mapping; gene expression control; promoter; termination

Arabidopsis thaliana

25.FEB-1999 05-MAR-1999 09-MAR-1999 23-MAR-1999 25-MAR-1999 25-MAR-1999 01-APR-1999 06-APR-1999 16-APR-1999 16-APR-1999 19-APR-1999 23-APR-1999 23-APR-1999 06-SEP-2000 25-FEB-2000; 2000EP-0301439 9908-0123180 9905-0125788 9905-0126784 9905-0126264 9905-0126264 9905-0126234 9905-0128234 9905-0128034 9905-0130077 9905-0130077 9905-0130091

\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	2 2 2
	999
99US-0132484 99US-0132485 99US-0132486 99US-0134218 99US-0134218 99US-0134219 99US-0134219 99US-0134211 99US-0134211 99US-0134211 99US-0134211 99US-0134211 99US-0134768 99US-0135353 99US-0135353 99US-0134761 99US-0134761 99US-0139451 99US-0139452 99US-0139452 99US-0139452 99US-0139453 99US-0139453 99US-0139453 99US-0139453 99US-0139453 99US-0139453 99US-0139453 99US-0139453 99US-0139453 99US-0139453 99US-014085 99US-0142803 99US-0144331 99US-0144331 99US-0144331 99US-0144333	906 306 306
**************************************	PR PR
22-JUL-1999 22-JUL-1999 22-JUL-1999 23-JUL-1999 23-JUL-1999 23-JUL-1999 23-JUL-1999 24-JUL-1999 26-JUL-1999 27-JUL-1999 27-JUL-1999 28-JUL-1999 28-JUL-1999 29-JUL-1999 20-JUL-1999 20-JUL	1-JUL-199 1-JUL-199 1-JUL-199
99US-0145085 99US-0145087 99US-0145087 99US-0145087 99US-0145089 99US-0145145 99US-0145214 99US-0145218 99US-0145218 99US-0145218 99US-0145218 99US-0145218 99US-0146388 99US-0146388 99US-0146388 99US-0146388 99US-0147038 99US-0147192 99US-0147192 99US-0147192 99US-0147192 99US-0147192 99US-0147192 99US-0147193 99US-0147193 99US-0147193 99US-0147193 99US-0147193 99US-0147193 99US-0147193 99US-0147193 99US-0147193 99US-0151066 99US-0147193 99US-0151066	222

```
ARESULT 7
AAB25232
ID 2AB2
XX AAB2
XX AAB2
XX Euca
XX II-J
PR 11-J
PR 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
22-OCT-1999
22-OCT-1999
22-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     26-OCT-1999;
26-OCT-1999;
26-OCT-1999;
28-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25-OCT-1999;
25-OCT-1999;
25-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21-OCT-1999;
21-OCT-1999;
AAA79263 to AAA79736 and AAB25100 to AAB25570 represent polynucleotide and protein sequences isolated from eucalyptus (Eucalyptus grandis) or pine (Pinus radiata also known as Monterey pine). The protein sequences are involved in cell signalling. The polynucleotide and protein sequences can be used to modify the response of plant cells to external
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eucalyptus grandis; Pinus radiata; Monterey pine; plant; modification; plant cell signalling; modulation; transgenic plant; pathogen; growth; environmental change; development; cell proliferation; differentiation; elongation; survival; disease resistance; nutrient metabolism.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-OCT-1999;
                                                                                                                                           Claim
                                                                                                                                                                                                      Isolated polynucleotide encoding a polypeptide involved in cell signaling used for generating transgenic plants with modified r
                                                                                                                                                                                                                                                                                                                                                                                                                    12-JAN-1999;
01-NOV-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-JAN-2000; 2000WO-US00724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20-JUL-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200042171-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eucalyptus grandis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eucalyptus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  27-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAB25232;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAB25232 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                                                                                                                                                          (GENE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                   external signals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDAEGK 161
                                                                                                                                                                                                                                                                                                                                                                       GENESIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                          Ξ,
                                                                                                                                      Page 246; 527pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                grandis cell signalling involved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0161359.
99US-0161360.
99US-0161361.
99US-0161920.
99US-0161923.
99US-0161993.
99US-0162142.
                                                                                                                                                                                                                                                                                                                          Nieuwenhuizen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99US-0160989.
99US-0161404.
99US-0161405.
99US-0161406.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0160741.
99US-0160767.
99US-0160768.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-
                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0228986.
99US-0162866.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US-0160815.
99US-0160980.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99US
                                                                                                                                                                                                                                                                                                                                                                       RES & DEV CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -0160768.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -0160981.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -0160814.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%;
100.0%;
                                                                                                                                      English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 7; DB 2; Pred. No. 57; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 21;
5. 57;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     占
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NO:551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                           responses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
RESULT 8
AAM490M1
XX AAM4
XX AAM4
XX AAM4
XX AAM4
DT 07-M
XX Huma
XX Huma
XX Homc
XX Homc
XX Yeas
XX Homc
XX Yeas
XX Homc
XX Yeas
XX Homc
XX Homc
XX Homc
XX Homc
XX Homc
XX Tof-M
XX Hom
XX Ho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ភិទ្ធិសិក្សិតិសិក្សិតិន្តិនិង្គ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 7
Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      signals e.g. environmental changes or pathogens during the growth and development of a plant. They can be used to modify cell proliferation, differentiation, elongation and survival, resistance to disease and nutrient metabolism. Examples of modifications which can be produced are altered fruit ripening and senescence of leaves and flowers e.g. to delay senescence and prolong the life of cut flowers or enhance senescence of reproductive organs to engineer sterile plants. Other modifications can be used to delay senescence in selected cell types or organs providing fruit and vegetables which have a longer shelf life between harvest and consumption, or to decrease branching frequency in forest tree species giving long stretches of valuable knot-free clear wood which can be used in solid timber furniture and veneers.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human; transcriptional regulation mediator; hMED6; hMed6p;
RNA polymerase II transcriptional regulation mediator homologue;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human transcriptional regulation mediator protein hMed6p.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAM49083 standard; Protein; 157
                                                                                                                                                                              The invention relates to a human transcriptional regulation mediator gene designated hMED6 and its encoded protein, hMed6p. hMed6p is a homologue of the yeast RNA polymerase II transcriptional regulation mediator Med6 (AAM49084, also given in GenBank accession number U78080) The invention also relates to recombinant microorganisms comprising the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           07-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAM49083;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                       Human transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-AUG-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         05-AUG-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KR99015342-A.
                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                          Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kim YJ,
                                                                                                                                                   hMED6 gene.
                                                                                                                                                                                                                                                                                                                                                                                          (hMed6p)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (SMSU)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000-220024/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Med6 homologue.
                                                                                                                                                                                                                                                                                                                                       6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        h 3.2%; Somilarity 100.0%; 17; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ABA96840.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SAMSUNG ELECTRONICS CO
                                                                                                                                                                                                                                                                                                                                       Page 16; 29pp;
                                                                                                                                                                                                                                                                                                                                                                                          anscription controlling mediator gene and strains transformed by the hMED6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lee YC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 151
                                                                                                     157
                                                                                                                                                      The present
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AA,
                                                                                                     A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97KR-0037392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         97KR-0037392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Min
                        3.2%;
                                                                                                                                                        sequence
                                                                                                                                                                                                                                                                                                                                            Korean.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score; Pred.
  Score 7; DB 2; Pred. No. 60; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CIL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches
                                                                                                                                                        represents
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB .
                             DB 21;
. 60;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              21;
                                                                                                                                                           hMed6p.
                                                                                                                                                                                                                                                                                                                                                                                                                     (hMED6),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                     Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   151;
                                                                                                                                                                                                                                                                                                                                                                                                                       products thereof
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

Similarity

Conservative

0

<u>..</u>

Indels

0

Gaps

0,

AAVILLT

```
S
                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                          CC The invention relates to isolated polynucleotide (I) and CC polypeptide (II) sequences. (I) is useful as hybridisation probes, CC polymerase chain reaction (PCR) primers, oligomers, and for chromosome CC and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags CC for identifying expressed genes. (I) is useful in gene therapy techniques CC (II). (II) is useful for generating antibodies against it, detecting or CC (II). (II) is useful for generating antibodies against it, detecting or CC quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful for treating CC diagning of sites expressing (II). (I) and (II) are useful for treating CC diagnostics involving aberrant protein expression or biological activity. CC The polypeptide and polynucleotide sequences have applications in CC diagnostics, forensics, gene mapping, identification of mutations CC responsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and CC and to produce other types of data and products dependent on DNA and CC diagnostic amino acid sequences of the invention.

CC Note: The sequence data for this patent did not appear in the printed CC specification, but was obtained in electronic format directly from WIPO CC at tip.wipo.int/pub/published_pct_sequences.
                                                                   Query Match
Best Local
                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess biodiversity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 20; SEQ ID No 48266; 103pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human; chromosome mapping; gene mapping; gene therapy; forensic food supplement; medical imaging; diagnostic; genetic disorder.
                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31-MAR-2000;
23-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             30-MAR-2001; 2001WO-US08631.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Novel human diagnostic protein #17898.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABG17907 standard; Protein; 159 AA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200175067-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-FEB-2002 (first entry)
117 AAVILLT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2001-639362/73.
DB; AAS82094.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LNSGSVL
                                                 Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RT,
                                                                                                                   159 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Liu C,
                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000US-0540217.
2000US-0649167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              176
                                                               3.2%; Score 7; 1
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         YT;
                                                   <u>.</u>
                                                 Mismatches
                                                                 DB 22; Length 159; 61;
                                               0;
                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                forensic;
                                                 0;
                                                 Gaps
                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
```

```
ARGILY701

ARGILY701

ARGILY701

ARGILY701

X

X

ARGILY701

ARGILY701

X

ARGILY701

ARGILY7
```

```
RESULT 11
AAG12700
ID AAG1
XX
                                                                                                                       밁
                                                               5
                                                                                   Query Match
Best Local S
Matches 7
                                                                                                                     18-AUG-1999
20-AUG-1999
20-AUG-1999
20-AUG-1999
23-AUG-1999
25-AUG-1999
26-AUG-1999
27-AUG-1999
28-EP-1999
28-EP-1999
29-SEP-1999
20-SEP-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
21-OCT-1999
22-OCT-1999
22-OCT-1999
22-OCT-1999
23-SEP-1999
24-OCT-1999
25-OCT-1999
26-OCT-1999
27-OCT-1999
27-OCT-1999
28-OCT-1999
         AAG12700
                                                                  155
                          11
                                                    74
                                                            ADDAEGK
                                                                                    Similarity 7; Conserv
         standard;
                                                                                    3.2%;
llarity 100.0%;
Conservative
                                                                   161
                                                    08
                                                                                                                      99US-0149426
99US-0149723
99US-0149723
99US-0149939
99US-0149930
99US-0150566
99US-0151065
99US-0151066
99US-0151303
99US-0151303
99US-0152363
99US-0154018
99US-0154018
99US-01554018
99US-0155438
99US-0155439
99US-0156458
99US-0166741
99US-0160814
99US-01614044
99US-01614061
99US-0161361
99US-0161361
99US-0161361
99US-0161361
         Protein;
         170
                                                                                     0;
                                                                                     Score 7; DB 2; Pred. No. 64; 0; Mismatches
         B
                                                                                        e 7;
No.
                                                                                          DB .
                                                                                                      21;
                                                                                                      Length 168;
                                                                                       Indels
                                                                                      0,
                                                                                       Gaps
```

18-JUN-1999
18-JUN

99US-01139456.
99US-01139459.
99US-01139461.
99US-0139461.
99US-0139461.
99US-0139463.
99US-013989.
99US-0140353.
99US-0140353.
99US-0140823.
99US-0140823.
99US-0140823.
99US-0140823.
99US-0140823.
99US-0140823.
99US-0140823.
99US-0144085.
99US-0144334.
99US-0144335.
99US-0144336.
99US-0145913.
99US-0145913.
99US-0145913.
99US-0147936.
99US-0147936.
99US-0147936.
99US-0147936.
99US-0147936.
99US-0147936.
99US-0148311.
99US-0148341.

\$	4 X F X B X 3 X
Inaction Representation Representati	
quence.  aliana.  ali	(first entry) thaliana protein fragment SEQ ID NO: 11916. thaliana protein fragment SEQ ID NO: 11916.
	קק אק אק אק אק אק
28-JUN 29-JUN 30-JUN 31-JUN	18-JUN-199 18-JUN-199 18-JUN-199 21-JUN-199 22-JUN-199 23-JUN-199 23-JUN-199 24-JUN-199
99US-0140843 99US-0141847 99US-0141847 99US-0142390 99US-0142390 99US-014297 99US-014297 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144332 99US-0144333 99US-0144333 99US-0144333 99US-0144333 99US-0144333 99US-0144333 99US-0144335 99US-0144338 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145088 99US-0145089 99US-0145089 99US-0145089 99US-0145089 99US-0145089 99US-0145089 99US-0145089 99US-0145089 99US-0145089 99US-0146386 99US-0147303 99US-0147303 99US-0147368 99US-0149368 99US-0149368 99US-0149723 99US-0149929 99US-0149929 99US-0149929 99US-0149930 99US-0149930	9US-013946 9US-013975 9US-013976 9US-013981 9US-013989 9US-014035 9US-014035

```
SXEXEXEXE
BXXXXX
                                                                                                                    ₿
                                                                                                                                    Ś
                                                                               AAR62784
                                                                                          RESULT 12
                                                                                                                                                       Query Ma
Best Loc
Matches
                                                                                                                                                                                                                    05-OCT-1999

06-OCT-1999

07-OCT-1999

12-OCT-1999

13-OCT-1999

13-OCT-1999

14-OCT-1999

14-OCT-1999

14-OCT-1999

14-OCT-1999

14-OCT-1999

21-OCT-1999

21-OCT-1999

21-OCT-1999

21-OCT-1999

21-OCT-1999

21-OCT-1999

21-OCT-1999

22-OCT-1999

22-OCT-1999

22-OCT-1999

25-OCT-1999

25-OCT-1999

26-OCT-1999

26-OCT-1999

26-OCT-1999

26-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-SEP-1999;
29-SEP-1999;
04-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15-SEP-1999;
16-SEP-1999;
20-SEP-1999;
22-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   07-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      27-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-AUG-1999;
27-AUG-1999;
OspC antigen; vaccine; Lyme disease; borreliosis; immunogen;
                                                      AAR62784;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23-SEP-1999
                  Borrelia M57
                                   25-MAY-1995
                                                                       AAR62784 standard;
                                                                                                                                     155 ADDAEGK 161
                                                                                                                    76
                                                                                                                                                               Local
                                                                                                                                                                          Match
                                                                                                                    ADDAEGK
                                                                                                                                                       Similarity 7; Conserv
                                                                                                                                                       Conservative
                                                                                                                    82
                 antigen vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99US-0154018.
99US-0154039.
99US-0154779.
99US-0155139.
99US-0155486.
99US-0155659.
                                    (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             99US-0150884.
99US-0151065.
99US-0151066.
                                                                                                                                                                                                                                                                                                                                                99US-0158029
99US-0158232
99US-0159293
99US-0159293
99US-0159295
99US-015929
99US-0159329
99US-0159330
99US-0159331
99US-015933
99US-015933
99US-015933
99US-015963
99US-015963
99US-015963
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0156458.
99US-0156596.
99US-0157117.
99US-0157753.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          99US-
                                                                                                                                                                                            99US-0157865
                                                                                                                                                                                           S-0161992.
S-0161993.
S-0162142.
                                                                                                                                                                                                                     3-0161361.
3-0161920.
                                                                                                                                                                                                                                                 3-0161406.
3-0161359.
                                                                                                                                                                                                                                                                 3-0160989.
3-0161404.
3-0161405.
                                                                                                                                                                                                                                                                                                              3-0160814.
3-0160815.
                                                                                                                                                                                                                                                                                                                               3-0160768.
3-0160770.
                                                                       Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ċ
                                                                                                                                                    3.2%; >--
100.0%; Pr
                                                                                                                                                                                                                                        -0161360.
                                                                                                                                                                                                                                                                                              -0160981
                                                                                                                                                                                                                                                                                                      -0160980
                                                                        175
                                                                                                                                                               Score 7; Pred. No.
                                                                        Š
                                                                                                                                                         Mismatches
                                                                                                                                                                DB 21;
o. 65;
                                                                                                                                                        0;
                                                                                                                                                                        Length 170;
                                                                                                                                                        Indels
                                                                                                                                                        0;
                                                                                                                                                        Gaps
                                                                                                                                                        0
ARRESULT 13
AAR62772
ID AAR62
XX AAR62
AC AAR62
AC AAR62
XX DT 25-MJ
CA AAR62
XX OSpC
KW Seroo
KW RFLP
XX OSPC
KW RFLP
XX OSPC
KW WO94:
YN WO94:
YN WO94:
PP 29-AI
XX X (IMMO
PA (IMMO
                                                                                                                                                                                                                                                  멍
                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                              Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N-PSDB;
                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Crowe B,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10-NOV-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO9425596-A.
                                                                                                                                                                 25-MAY-1995
                                                                                                                                                                                    AAR62772;
 (IMMO ) IMMUNO
                                    29-APR-1994;
                                                       10-NOV-1994.
                                                                        WO9425596-A.
```

```
A vaccine for Lyme disease includes selected OspC antigen formulations based on defined OspC families resolved by serovar typing and RFLP typing. Partial sequences of OspC genes selected from different RFLP types are given in AAQ73883-995 (encoded peptides, comprising the first 92% of mature OspC, are given in AAR62771-93). Complete sequences of these novel ospC genes, including the 3' end, plus sequences for the ospC genes of Borrelia strains H13 and 28691 are given in AAQ73857-82, and encoded proteins in AAR6084-909. The DNA sequences may be expressed in e.g. Pichia pastoris for recombinant antigen production.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Immunogenic composition comprising OspC antigens - for the treatment of Lyme borreliosis in different, specific geographical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     serovar typing; restriction fragment length polymorphism; \mathsf{RFLP}; Pichia pastoris.
                                                                                                                                                 OspC antigen; vaccine; Lyme disease; borreliosis; immunogen; serovar typing; restriction fragment length polymorphism; RFLP; Pichia pastoris.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure; Fig.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1994-358273/44.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Borrelia burgdorferi M57.
                                                                                                                                                                                                              Borrelia B31 antigen vaccine.
                                                                                                                                                                                                                                                                                                        AAR62772 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ONDMMI (OWMI)
29-APR-1993;
                                                                                                                      Borrelia burgdorferi B31
                                                                                                                                                                                                                                                                                                                                                                                  136 AKEAILK 142
                                                                                                                                                                                                                                                                                                                                                                                                              39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity nes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAQ73896.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Dorner F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative 0;
                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9308-0053863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94WO-EP01365
93US-0053863
                            94WO-EP01365.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  9; 115pp;
                                                                                                                                                                                                                                                                                                         Protein; 176 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Livey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ħ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     English.
                                                                                                                                                                                                                                                                                                                                                                                                                                            score 7; DB 1
f; Pred. No. 67;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 175;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
```

0;

```
RESULT 14
AAR62785
ID AAR62
   밁
                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                     Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A vaccine for Lyme disease includes selected OspC antigen formulations based on defined OspC families resolved by servar typing and RFLP typing. Partial sequences of OspC genes selected from different RFLP types are given in AAQ73883-905 (encoded peptides, comprising the first 92% of mature OspC, are given in AAR62771-93). Complete sequences of these novel ospC genes, including the 3' end, plus sequences for the ospC genes of Borrelia strains H13 and 28691 are given in AAQ73857-82, and encoded proteins in AAR60884-909. The DNA sequences may be expressed in e.g. Pichia pastoris for recombinant antigen production.
                                                                                  WPI; 1994-358273/44.
N-PSDB; AAQ73897.
                                                                                                                                                                                                                                         OBPC antigen; vaccine; Lyme serovar typing; restriction RFLP; Pichia pastoris.
A vaccine for Lyme disease includes selected OspC antigen formulations based on defined OspC families resolved by serovar
                            Disclosure;
                                                    Immunogenic composition comprising OspC antigens - for the treatment of Lyme borreliosis in different, specific geographical
                                                                                                             Crowe B,
                                                                                                                                                 29-APR-1993;
                                                                                                                                                                   29-APR-1994;
                                                                                                                                                                                     10-NOV-1994.
                                                                                                                                                                                                                        Borrelia burgdorferi W.
                                                                                                                                                                                                                                                                              Borrelia W antigen vaccine
                                                                                                                                                                                                                                                                                                                                     AAR62785 standard; Protein; 176 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Immunogenic composition comprising OspC antigens - for the treatment of Lyme borreliosis in different, specific geographical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB; AAQ73884.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1994-358273/44.
                                                                                                                                                                                                                                                                                                25-MAY-1995 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Crowe B,
                                                                                                                               (OMMI)
                                                                                                                                                                                                                                                                                                                                                                                  137 AKEAILK 143
                                                                                                                                                                                                                                                                                                                                                                                                   39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                    l Similarity
7; Conserva
                                                                                                                               IMMUNO
                                                                                                            Dorner F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dorner
                                                                                                                                                                                                                                                                                                                                                                                                                                                          176 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Fig.
                          Fig. 9; 115pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                               გ
.
                                                                                                                                                  93US-0053863
                                                                                                                                                                   94WO-EP01365.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              '8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9; 115pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                             3.2%; Score 7; I
100.0%; Pred. No.
                                                                                                             Livey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Livey
                                                                                                                                                                                                                                                   disease;
fragment
                                                                                                                                                                                                                                                                                                                                                                                                                    o;
                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                borreliosis; immunogen;
length polymorphism;
                                                                                                                                                                                                                                                                                                                                                                                                                             DB 15; Length 176; . 67;
                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                    0
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
```

```
RESULT 15
AAG12699
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ត្តត្តត្តត្តត្តន្ត<sup>8</sup> និង
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local (
05-MAR-1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
25-MAR-1999
01-APR-1999
06-APR-1999
16-APR-1999
17-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
24-MAY-1999
06-MAY-1999
07-MAY-1999
11-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      typing and RFLP typing. Partial sequences of OspC genes selected from different RFLP types are given in AAQ73883-905 (encoded peptides, comprising the first 92% of mature OspC, are given in AAR62771-93). Complete sequences of these novel ospC genes, including the 3' end, plus sequences for the ospC genes of Borrelia strains H13 and 28691 are given in AAQ73857-82, and encoded proteins in AAR60884-909. The DNA sequences may be expressed in e.g. Pichia pastoris for recombinant antigen production.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     termination
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAG12699 standard; Protein; 177 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-FEB-2000; 2000EP-0301439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            06-SEP-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Arabidopsis thaliana protein fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      137 AKEAILK 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           176 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first entry)
9908-0121825.
9908-0123548.
9908-0125788.
9908-0126764.
9908-0127462.
9908-0128714.
9908-0128714.
9908-0129845.
9908-013091.
9908-013091.
9908-013091.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
9908-013248.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 7; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 15;
o. 67;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11915.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
```

***************************************	\(\frac{1}{2}\) \(\frac{1}\) \(\frac{1}{2}\) \(\frac{1}{2}\) \(\frac{1}{2}\) \(\frac{1}{2}\) \(\frac{1}{2}\) \
18-JUN-1999 22-JUN-1999 23-JUN-1999 23-JUN-1999 24-JUN-1999 24-JUN-1999 25-JUN-1999 26-JUN-1999 17-JUN-1999 18-JUN-1999 18-JUN	
9908-0139456 9908-0139457 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139463 9908-0139763 9908-0140353 9908-0140353 9908-0140823 9908-0141842 9908-01422970 9908-0142390 9908-0142390 9908-0142390 9908-0144334 9908-0144333 9908-0144333 9908-0144333 9908-0144333 9908-0144333 9908-0144333 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0144334 9908-0145086 9908-0145086 9908-0145086 9908-0145086 9908-0145089 9908-0145089 9908-0145089 9908-0145089 9908-0145089 9908-0145089 9908-0145089 9908-0145089 9908-0145089 9908-0145089	99US-0135629 99US-0136021 99US-0136782 99US-0137528 99US-0137528 99US-0137528 99US-013754 99US-0138640 99US-0138640 99US-0138647 99US-0139642 99US-0139452 99US-0139452 99US-0139454 99US-0139454
	·
***************************************	PR
AUG-1999 AUG	
66666666666666666666666666666666666666	

```
RESULT 16
AAR60898
 밁
                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 7
                                          Matches
                                                               Query Match
                                                                                                                  A vaccine for Lyme disease includes selected OspC antigen formulations based on defined OspC families resolved by serovar typing and RFLP typing. Partial sequences of OspC genes selected from different RFLP types are given in AAQ73833-905 (encoded peptides, comprising the first 92% of mature OspC, are given in AAR62771-93). Complete sequences of these novel ospC genes, including the 3' end, plus sequences for the ospC genes of Borrelia strains H13 and 28691 are given in AAQ73857-82, and encoded proteins in AAR60884-909. The DNA sequences may be expressed in e.g. Pichia pastoris for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   28-OCT-1999;
28-OCT-1999;
29-OCT-1999;
                                                                                     Sequence
                                                                                                                                                                                                                                Disclosure; Fig. 9a; 115pp; English.
                                                                                                                                                                                                                                                                                                   N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                          10-NOV-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OspC antigen; vaccine; Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Borrelia M57 antigen vaccine.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR60898 standard; Protein; 191 AA
                                                                                                                                                                                                                                                                                                              WPI; 1994-358273/44
                                                                                                                                                                                                                                                                                                                                   Crowe B,
                                                                                                                                                                                                                                                                                                                                                                              29-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                    29-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9425596-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         serovar typing;
RFLP; Pichia pa
                                                                                                          recombinant antigen production.
                                                                                                                                                                                                                                                               Immunogenic composition comprising OspC antigens - for the treatment of Lyme borreliosis in different, specific geographical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borrelia burgdorferi M57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-MAY-1995
                                                                                                                                                                                                                                                                                                                                                         (IMMO)
 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155 ADDAEGK 161
                    39
                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              83 ADDAEGK 89
                    AKEAILK 45
AKEAILK 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 100.
7; Conservative
                                                     Similarity
                                                                                                                                                                                                                                                                                                    AAQ73871.
                                                                                                                                                                                                                                                                                                                                                          IMMUNO
                                                                                                                                                                                                                                                                                                                                   Dorner F,
                                                                                     191 AA;
                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         pastoris.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0161992.
99US-0161993.
99US-0162142.
                                                                                                                                                                                                                                                                                                                                                         ÃG.
                                                                                                                                                                                                                                                                                                                                                                               93US-0053863
                                                                                                                                                                                                                                                                                                                                                                                                    94WO-EP01365.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     restriction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.2%; Score
100.0%; Pred.
                                                                                                                                                                                                                                                                                                                                   Livey
                                                      100.0%;
                                                               3.2%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                disease; fragment
                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                     Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ore 7; DB 2
Pred. No. 67;
Mismatches
                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               borreliosis; immunogen;
length polymorphism;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
67;
                                                    DB 15;
5.72;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21;
                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 177;
                                                               Length 191;
                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                         0;
```

RESULT 17

Borrelia burgdorferi IP2

```
RESULT 18
SXEEXEXEXEXEX
                                                                                                                                                                                          밁
                                                                                                                                                                                                              8
                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                A vaccine for Lyme disease includes selected OspC antigen formulations based on defined OspC families resolved by serovar typing and RFLP typing. Partial sequences of OspC genes selected from different RFLP types are given in AAQ73883-905 (encoded peptides, comprising the first 92% of mature OspC, are given in AAR62771-93). Complete sequences of these novel ospC genes, including the 3' end, plus sequences for the ospC genes of Borrelia strains H13 and 28691 are given in AAQ73857-82, and encoded proteins in AAR60884-909. The DNA sequences may be expressed in e.g. Pichia pastoris for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OBPC antigen; vaccine; Lyme serovar typing; restriction RFLP; Pichia pastoris.
                    serovar typir
RFLP; Pichia
                              OspC antigen; vaccine; Lyme serovar typing; restriction
                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                       areas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WPI; 1994-358273/44
N-PSDB; AAQ73872.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Crowe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9425596-A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borrelia W antigen vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAR60899;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR60899 standard; Protein; 192 AA
                                                                Borrelia IP2
                                                                                       25-MAY-1995
                                                                                                             AAR60886;
                                                                                                                                  AAR60886 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Fig. 9a; 115pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Immunogenic composition comprising OspC antigens - fo
treatment of Lyme borreliosis in different, specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (IMMO ) IMMUNO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                29-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            10-NOV-1994.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 25-MAY-1995
                                                                                                                                                                                          137
                                                                                                                                                                                                                                                                                                      recombinant antigen production.
                                                                                                                                                                                                              39 AKEAILK 45
                                                                                                                                                                                          AKEAILK 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                    Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Dorner
                                                                                                                                                                                                                                                                                 192 AA;
                                                                                                                                                                                                                                     Conservative
                    pastoris.
                                                               OspC antigen vaccine.
                                                                                      (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                93US-0053863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      94WO-EP01365
                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Livey
                                                                                                                                                                                                                                 J.08;
0;
                              disease; l
fragment
                                                                                                                                                                                                                                   Score 7; DB 1; Pred. No. 72; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       disease; fragment
                                                                                                                                  192
                                                                                                                                  ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       borreliosis; immunog
length polymorphism;
                                          borreliosis; immunogen;
                              length
                                                                                                                                                                                                                                               DB 15;
o. 72;
                              polymorphism;
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                        Length 192;
                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            for the
                                                                                                                                                                                                                                                                                                                                                                                                                                                               geographical
                                                                                                                                                                                                                                     0,
                                                                                                                                                                                                                                     Gaps
```

```
RESULT 19
AAB62703
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                               A vaccine for Lyme disease includes selected OspC antigen formulations based on defined OspC families resolved by serovar typing and RFLP typing. Partial sequences of OspC genes selected from different RFLP types are given in AAQ7383-905 (encoded peptides, comprising the first 92% of mature OspC, are given in AAR62771-93). Complete sequences of these novel ospC genes, including the 3' end, plus sequences for the ospC genes, including the 32661 are given in AAQ73857-82, and encoded proteins in AAR60884-909. The DNA sequences may be expressed in e.g. Pichia pastoris for
                                                                                                                                                                                                     B burgdorferi ospC protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Disclosure; Fig. 9a; 115pp; English
N-PSDB; AAF29007
                                                                                                                       28-DEC-2000
                                                                                                                                                              Borrelia burgdorferi
                                                                                                                                                                                 Borrelia; ospC;
                                                                                                                                                                                                                          03-APR-2001
                                                                                                                                                                                                                                               AAB62703;
                                                                                                                                                                                                                                                                   AAB62703 standard;
                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Immunogenic composition comprising OspC antigens - for the treatment of Lyme borreliosis in different, specific geographical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Crowe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (OMMI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-APR-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-APR-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9425596-A
                            Dattwyler RJ,
                                                                              18-JUN-1999;
                                                                                                  19-JUN-2000; 2000WO-US16915
                                                                                                                                           WO200078966-A1
                                                                                                                                                                                                                                                                                                                                                                                                                          recombinant
                                                                                                                                                                                                                                                                                                                     137
                                                                                                                                                                                                                                                                                                                                        39
                                                                                                                                                                                                                                                                                                                                                            Local Similarity
les 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1994-358273/44
DB; AAQ73859.
         2001-050113/06
                                                                                                                                                                                                                                                                                                                     AKEAILK 143
                                                                                                                                                                                                                                                                                                                                        AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Β,
                                                UNIV 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IMMUNO AG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dorner F,
                                                                                                                                                                                                                                                                                                                                                                                                     192 AA;
                                                                                                                                                                                                                                                                                                                                                            3.2%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                        antigen production.
                                                NEW YORK STATE RES FOUND RESIDENCE OF THE STATE RESIDENCE.
                                                                                                                                                                                                                          (first
                             Seinost
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         93US-0053863
                                                                               99US-0140042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            94WO-EP01365
                                                                                                                                                                                 Lyme
                                                                                                                                                                                                                                                                   Protein;
                                                                                                                                                                                                                          entry)
                                                                                                                                                                                  disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Livey
                            ė
                                                                                                                                                                                                      SEQ
                            Dykhuizen
                                                                                                                                                                                                                                                                    192
                                                                                                                                                                                                                                                                                                                                                                     Score 7; D; Pred. No.
                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                 vaccine; chimeric protein; tick
                                                                                                                                                                                                      ID NO:
                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                              Mismatches
                            b
                                                                                                                                                                                                                                                                                                                                                                       DB 15;
                            Luft
                            핂,
                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                Length 192
                                                                                                                                                                                                                                                                                                                                                             Indels
                            Gomes-Solecki
                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                             <u>,,</u>
```

ş

39 AKEAILK 45

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches
 Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Compositions of OspC polypeptides Lyme disease are used to immunize to Lyme disease -
                                                                                                                                                            Compositions of OspC polypeptides from strains of Borrelia which cause Lyme disease are used to immunize animals and detect immune responses to Lyme disease - \,
                                                                                                                                                                                                                                                                                                                                                                                               Borrelia burgdorferi.
                                                                                                                                                                                                                                                                                                                                                                                                                    Borrelia; ospC; Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                          B burgdorferi ospC protein SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAB62721 standard; Protein; 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention provides compositions comprising ospC proteins and chimeric ospC proteins from members of the Borrelia genus. These may be Borrelia burgdorferi, B. afzelli or B. garinii. These can be used as vaccines against Borrelia infection, which is spread by ticks and leads
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Disclosure; Page 67; 160pp; English.
                                              Sequence
                                                                                The present invention provides compositions comprising ospC proteins and chimeric ospC proteins from members of the Borrella genus. These may be Borrella burgdorferi, B. afzelii or B. garinii. These can be used as vaccines against Borrella infection, which is spread by ticks and leads
                                                                                                                                        Disclosure;
                                                                                                                                                                                                          N-PSDB;
                                                                                                                                                                                                                                                                                                                                                  28-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                        WO200078966-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 03-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAB62721;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      to Lyme
                                                                    Ö
                                                                                                                                                                                                                                           Dattwyler
                                                                                                                                                                                                                                                                                                     18-JUN-1999;
                                                                                                                                                                                                                                                                                                                            19-JUN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       144 AKEAILK 150
                                                                                                                                                                                                                                                                     BR00-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39
                                                                    Lyme disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AKEAILK 45
                                                                                                                                                                                                                      2001-050113/06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7; Conserv
Similarity 7; Conserv
                                                                                                                                                                                                           AAF29025
                                                                                                                                                                                                                                                                  UNIV NEW YORK STATE RES FOUND. BROOK BIOTECHNOLOGIES INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       disease.
                                                                             ospC proteins fro
burgdorferi, B. a
against Borrelia
                                                                                                                                                                                                                                             짇
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                192
                                              192
llarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                       Page 105-106; 160pp;
                                                                                                                                                                                                                                                                                                                            2000WO-US16915.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AA;
                                               ă,
                                                                                                                                                                                                                                              Seinost
                                                                                                                                                                                                                                                                                                     99US-0140042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%; United 100.0%; Pr/
                                                                                                                                                                                                                                                                                                                                                                                                                      disease;
                                                                                                                                                                                                                                             Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   s; Score 7; DB 2
s; Pred. No. 72;
0; Mismatches
                                                                                                                                                                                                                                              Dykhuizen
  0;
 Score 7; DB 22;
Pred. No. 72;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                      vaccine; chimeric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽
                                                                                                                                        English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from strains of Borrelia which cause animals and detect immune responses
                                                                                                                                                                                                                                              'n
                                                                                                                                                                                                                                                                                                                                                                                                                                            46.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
72;
                                                                                                                                                                                                                                              Luft BJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22;
  <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                       Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                      protein;
   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                              Gomes-Solecki M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           192
                                                                                                                                                                                                                                                                                                                                                                                                                       tick.
   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
   0
```

```
밁
   21-APR-1999
23-APR-1999
23-APR-1999
23-APR-1999
30-APR-1999
30-APR-1999
06-MAY-1999
06-MAY-1999
14-MAY-1999
11-MAY-1999
12-MAY-1999
21-MAY-1999
21-JUN-1999
21-JUN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                05-MAR 1999
05-MAR 1999
09-MAR-1999
23-MAR-1999
25-MAR-1999
29-MAR-1999
01-APR-1999
06-APR-1999
16-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Protein identification; signal transduction pathway; metabolic pathway; hybridisation assay; genetic mapping; gene expression control; promoter; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAG28190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EP1033405-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAG28190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         thaliana protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000EP-0301439
 99US-0121825
99US-012548
99US-0125788
99US-01267785
99US-01267785
99US-01267785
99US-0128714
99US-0130771
99US-013049
99US-0131491
99US-013248
99US-013263
99US-013471
99US-013471
99US-013472
99US-013472
99US-013472
99US-013472
99US-013472
99US-013553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           33316
   ק סוס קים עו סוס ביו לו ל
18-JUN-1999
18-JUN
9908-0139456
9908-0139456
9908-0139450
9908-0139461
9908-0139461
9908-0139750
9908-0139750
9908-0139750
9908-0140823
9908-0140823
9908-0141287
9908-0141287
9908-0141287
9908-0141287
9908-0141287
9908-0142803
9908-0142803
9908-0142803
9908-0142803
9908-0142803
9908-0142803
9908-0142803
9908-014331
9908-014331
9908-014332
9908-014332
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
9908-014333
```

```
RESULT 22
AAU57004
ID AAU57
                                                                                   밁
                                           Ś
                                                        Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                      18-AUG-1999
20-AUG-1999
20-AUG-1999
20-AUG-1999
23-AUG-1999
23-AUG-1999
25-AUG-1999
26-AUG-1999
27-AUG-1999
27-AUG-1999
                                                                                                                              21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
21-CCT-1999
22-CCT-1999
22-CCT-1999
22-CCT-1999
22-CCT-1999
25-CCT-1999
25-CCT-1999
25-CCT-1999
                                                                                                                                                                                                                                                                                            29-SEP-1999;
04-OCT-1999;
05-OCT-1999;
                                                                                                                                                                                                                                                                                                                           20-SEP-1999;
22-SEP-1999;
23-SEP-1999;
                                                                                                                                                                                                                                                                   08-OCT-1999;
12-OCT-1999;
                                                                                                                                                                                                                                                                                06-OCT-1999
07-OCT-1999
                                                                                                                                                                                                                                                                                                               24-SEP-1999;
28-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                       07-SEP-1999
                                                                                                                  26-OCT-1999;
26-OCT-1999;
                                                                                                                                                                                                          14-OCT-1999;
18-OCT-1999;
                                                                                                                                                                                                                       14-OCT-1999;
14-OCT-1999;
                                                                                                                                                                                                                                                       13-OCT-1999
13-OCT-1999
                                                                                                                                                                                                                                                                                                                                               16-SEP-1999
                                                                                                                                                                                                                                                                                                                                                           13-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                  10-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                               01-SEP-1999
                                                                                                                                                                                                                                                                                                                                                                                           30-AUG-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17-AUG-1999;
                                                                                                                                                                                                                                                13-OCT-1999
                                163
                                            175 VLVDGLQ 181
                               VLVDGLQ
                                                                                                                                                                                                                                    -1999
                                                        Similarity 100 7; Conservative
                                169
                                                                                                                                                                                                                                                           99US-0153070.
99US-0153758.
99US-0154018
99US-0154039.
99US-0155139
99US-0155436.
99US-0155696.
99US-0156596.
99US-0157117.
99US-0157153.
99US-0158029.
99US-0158029.
99US-0158029.
99US-0158029.
99US-0158029.
                                                                                                                                                                                                                                                                                                                                                                       99US-0151438.
99US-0151930.
99US-0152363.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0149175.
99US-0149426.
99US-0149722.
                                                                                  99US-0160741

99US-0160767

99US-0160768

99US-0160814

99US-0160814

99US-0160980

99US-0160980

99US-0160980

99US-0161404

99US-0161406

99US-0161406

99US-0161359

99US-0161361

99US-0161361

99US-0161361

99US-0161361

99US-0161361

99US-0161361

99US-0161361

99US-0161393

99US-0161993
                                                                                                                                                                                              99US-0159638.
99US-0159584.
99US-0160741.
99US-0160767.
                                                                                                                                                                                                                      99US-0159330.
99US-0159331.
99US-0159637.
                                                                                                                                                                                                                                                                                                                                                                                          S066
                                                                                                                                                                                                                                                                                                                                                                                                       99US-
                                                                                                                                                                                                                                                                                                                                                                                                                          -Sn66
                                                                                                                                                                                                                                          SD66
                                                                                                                                                                                                                                                                                                                                                                                                                    99US
                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0149902
                                                                                                                                                                                                                                                99US-0159294.
99US-0159295.
                                                                                                                                                                                                                                         S-0159295.
S-0159329.
                                                                                                                                                                                                                                                                                                                                                                                                                   3-0149930.
3-0150566.
3-0150884.
                                                                                                                                                                                                                                                                                                                                                                                                       -0151065.
                                                      3.2%; Suc
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                             -0149929
                                                                                                                                                                                                                                                                                                                                                                                                                                                   149723.
                                                        Score 7; DB 2; Pred. No. 75; 0; Mismatches
                                                            DB
75;
                                                                    21;
                                                         ..
                                                                      Length 200
                                                         0
                                                         Gaps
                                                         0,
                                                                                   ABP30264
ID ABP3
             RESULT
                                망
                                           Ś
                                                        Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                  01-NOV-2001.
                                                                                   Sequence
                                                                                                                                                                                                                                               treating
                                                                                                                                                                                                                                                                           N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAU57004;
                                                                                                                                                                                                                                                                                                                (CORI-)
                                187
                                            178 DGLQLLQ 184
             23
                                DGLQLLQ 193
                                                        Similarity 100.0%; I
7; Conservative 0;
```

AAU57004 standard; Protein;

202 AA.

ABP30264 standard; Protein; 205

₿

%; Score 7; DB 2
%; Pred. No. 76;
0; Mismatches

DB 22; ). 76;

Length 202;

Indels

٥,

Gaps

```
cc polypeptides. The proteins and their associated DNA sequences are used in the treatment, prevention and diagnosis of medical conditions caused by CC P. acnes. The disorders include SAPHO syndrome (synovitis, acne, CC pustulosis, hypertosis and osteomyelitis), uveitis and endopthalmitis. CC P. acnes is also involved in infections of bone, joints and the central CC nervous system, however it is particularly involved in the inflammatory CC lesions associated with acne vulgaris. A method for detecting the CC presence or absence of P. acnes in a patient comprises contacting a CC sample with a binding agent that binds to the proteins of the invention CC and determining the amount of bound protein in the sample. The CC obspicious may be used as antigens in the production of antibodies CC specific for P. acnes proteins. These antibodies can be used to diagnostic agents for determining P. acnes polypeptides and CC determining the acnes infections. The antibodies may also be used as CC diagnostic agents for determining P. acnes presence, for example, by CC enzyme linked immunosorbent assay (ELISA).

CC Note: The sequence data for this patent did not form part of the printed conspecification, but was obtained in electronic format directly from WIPO CC at fits.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SAPHO syndrome; synovitis; acne; pustulosis; hypertosis; osteomyelitis; uveitis; endophthalmitis; bone; joint; central nervous system; ELISA; inflammatory lesion; acne vulgaris; enzyme linked immunosorbent assay; dermatological; osteopathic; neuroprotectant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Example 1; SEQ ID No 18199; 1069pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Propionibacterium acnes vaccinating against and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Skeiky YAW, Persing DH, I
L'maisonneuve J, Zhang Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21-APR-2000; 2000US-199047P.
02-JUN-2000; 2000US-208841P.
07-JUL-2000; 2000US-216747P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-APR-2001; 2001WO-US12865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Propionibacterium acnes immunogenic protein #17900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequences AAU39105-AAU68017 represent Propionibacterium acnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200181581-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Propionibacterium acnes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001-616774/71.
DB; AAS59579.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORIXA CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   acne vulgaris
202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polypeptides and nucleic acids useful for diagnosing infections, especially useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mitcham JL, Wang SS,
Jen S, Carter D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bhatia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               s immunogenic
s are used in
s caused by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for
```

```
RESULT 24
AAR75728
   BXXX
                                                                                       문
                                                                                                            ફ
                                                                                                                                                                             The invention relates to a protein (ABP25413-ABP30895) from group B streptcocccus/GBS (Streptcocccus agalactiae) or group A streptcocccus/GAS (Streptcocccus hydrococcus agalactiae) or group A streptcocccus/GAS (Streptcocccus pyogenes), comprising one of 5483 sequences (S1), given in the specification. The proteins have antibacterial and antiinflammatory activity. (I), nucleic acids encoding (I), ABN66044-ABN71526 and antibodies that bind (I) are used in the manufacture of medicaments for the treatment or prevention of infection or disease caused by Streptcocccus bacteria, particularly S. agalactiae and S. pyrogenes. Nucleic acids encoding (I) are used to detect Streptcocccus in a biological sample. (I) is used to detect Streptcocccus in a composition comprising (I) or a nucleic acid encoding (I), may be used as a vaccine or diagnostic composition. The disease caused by Streptcocccus that is prevented or treated may be meningitis. Nucleic acid encoding (I) may be used to recombinantly produce (I) and may be used in gene therapy. Antibodies to (I) are used for affinity correctly immunoassays, and distinguishing/identifying
                                                                                                                                  Matches
                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                   New Streptococcus
or disease caused
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Telford J,
Tettelin H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptococcus; GAS; GBS; group B streptococcus; Streptococcus agalactiae; group A streptococcus; Streptococcus pyogenes; antibacterial; antiinflammatory; infection; vaccine; meningitis; gene therapy.
                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        02-JUL-2002 (first entry)
                                 AAR75728 standard; Protein;
                                                                                                                                                                                                 Streptococcus proteins.
                                                                                                                                                                                                                                                                                                                                                                                                   Claim 1; Page 4097; 4525pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27-OCT-2000;
24-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-OCT-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Streptococcus agalactiae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Streptococcus polypeptide SEQ ID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200234771-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ABP30264;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (GENO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CHIR-)
                                                                                                            37
                                                                                       74
                                                                                                                                                                                                                                                                                                                                                                                                                      Streptococcus protein for the treatment or prevention of infection lisease caused by Streptococcus bacteria, such as meningitis, and detecting a compound that binds to the protein -
                                                                                                     ELAKEAI 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2002-352536/38.
DB; ABN70895.
                                                                                                                                 Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHIRON SPA.
INST GENOMIC RES
                                                                                                                                                                            205 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Masignani V,
                                                                                                                                3.2%; Score 7; DB llarity 100.0%; Pred. No. 77 Conservative 0; Mismatches
                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2000GB-0026333
2000GB-0028727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001WO-GB04789.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001GB-0005640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Margarit Ros YI, Grandi G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9704
                                                                                                                                             DB 23;
o. 77;
                                                                                                                                 0
                                                                                                                                                      Length 205;
                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fraser
                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ç
                                                                                                                                Gaps
                                                                                                                                0
XXXXXXXXXX
                                                                                                                                                      밁
                                                                                                                                                                        Ś
```

```
RESULT 25
AAB62720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   The present sequence is the B. burgdorferi strain K48, outer surface protein C (OspC-K48). Using chemical or enzymatic methods, peptide fragments of OspC-K48 were prepd., and analysed by western C blot to assess their ability to bind different anti-OspC monoclonal antibodies. The information obtd. was used to locate antigenic domains in OspC-K48, the epitopes of which were mapped with the caid of site directed mutagenesis. Identical analyses were performed on a selection of Osp purified from a variety of B. burgdorferi c strains, the results from which were utilised in the prepn. of a pool of antigenic Borrelia polypeptides, and corresponding polymucleotides. Chimaeric proteins comprising 2 or more antigenic Borrelia polypeptides, that do not naturally occur in the same c protein, can be used in the treatment and diagnosis of Borrelia contractions, i.e. as a vaccine against Lyme borrelia antibodies or to immunodiagnostic assays to detect anti-Borrelia antibodies or to
                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Strain K48; outer surface protein; OspC; antigenic ochimaeric protein; treatment; diagnosis; infection; Lyme borreliosis; immunodiagnostic assay; antibody; T-cell reactivity; chimeric.
B burgdorferi ospC protein SEQ ID NO:
                                                       03-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence
                                                                                                                                                              AAB62720 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     measure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chimeric protein comprising 2 or more antigenic Borrelia polypeptide(s) - useful in a vaccine against Lyme borreliosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 1995-215034/28.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Dunn JJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-APR-1994;
01-NOV-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27-OCT-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          W09512676-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Borrelia burgdorferi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         31-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (ASUY-) ASSOC UNIVERSITIES INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  immuno:diagnostic assays
                                                                                                                                                                                                                                                                                                  154 AKEAILK 160
                                                                                                                                                                                                                                                                                                                                      39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    burgdorferi strain K48 outer surface protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1; Fig 13; 200pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  T-cell reactivity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAQ90715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Luft BJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                209 AA;
                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                       (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94US-0235836.
93US-0148191.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  94WO-US12352
                                                                                                                                                                                                                                                                                                                                                                                                   3.2%; Score 7;
100.0%; Pred. No.
tive 0; Mismatc
                                                                                                                                                              209
                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
     44.
                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 16;
5. 78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antigenic domain;
infection; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 209;
                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (OspC-K48)
                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
```

Borrelia; ospC; Lyme disease; vaccine; chimeric protein; tick.

```
RESULT 26
AAW11935
ID AAW11
XX AAW11
XX OLTER
DE Outer
XX Outer
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention provides compositions comprising ospC proteins and chimeric ospC proteins from members of the Borrelia genus. These may be Borrelia burgdorferi, B. afzelii or B. garinii. These can be used as vaccines against Borrelia infection, which is spread by ticks and leads
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 104; 160pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Compositions of OspC polypeptides from strains of Borrelia which Lyme disease are used to immunize animals and detect immune respo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Outer surface protein C #2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-APR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAW11935;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAW11935 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           to Lyme disease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lyme disease are used
to Lyme disease -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2001-050113/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dattwyler Rö,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               19-JUN-2000; 2000WO-US16915
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200078966-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Borrelia burgdorferi.
New Borrelia burgdorferi DNA encodes the outer surface protein
                                                WPI; 1995-206938/27.
                                                                                                                                                                                         24-NOV-1993;
                                                                                                                                                                                                                                     22-NOV-1994;
                                                                                                                                                                                                                                                                                   01-JUN-1995.
                                                                                                                                                                                                                                                                                                                                                                              Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                          therapy.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (BROO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (UYNY )
                                                                                               Padula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          tick;
                                                                                                                                           (UYCO-) UNIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                    mmunodominant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154 AKEAILK 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                surface protein; ospC; Borrelia burgdorferi; IgM reactive; p23;
spirochete; Lyme disease; multisystem infection; Lyme borreliosis;
odominant antigen; humoral antibody response; mammal; vaccine;
                                                                                            sJ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAF29024.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BROOK BIOTECHNOLOGIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  UNIV NEW YORK STATE RES FOUND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 209 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                           CONNECTICUT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Seinost
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   99US-0140042
                                                                                                                                                                                         93US-0158353
                                                                                                                                                                                                                                     94WO-US13540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.2%;
                                                                                                                                                                                                                                                                                                                                                                                strain B31.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ó
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dykhuizen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A
A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB
78;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Luft
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        detect immune responses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭔,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gomes-Solecki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cause
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٥,
```

```
RESULT 27
AAR75727
ID AAR75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This sequence represents the Borrelia burgdorferi strain B31 outer surface protein C (OspC). OspC is a 23 kD IgM reactive protein, and is also known as p23. B31 is a North American B. burgdorferi strain, that produces large amounts of OspC. B. burgdorferi is a tick borne spirochete that causes Lyme disease (which is a multisystem infection). OspC is an immunodominant antigen that elicits a humoral antibody response in mammals with early Lyme disease. This OspC protein (in recombinant or pure form) can be used for the specific and sensitive detection of early Lyme disease. This is due to the fact that OspC is a immunodominant antigen. The protein can also be used in a vaccine for
                                                                                                                                                                                                                                                                                                                                                                                   Strain B31; outer surface protein; OspC; antigenic domain; chimaeric protein; treatment; diagnosis; infection; vaccin Lyme borreliosis; immunodiagnostic assay; antibody; T-cell reactivity; chimeric.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   used
                                                          Chimeric protein comprising 2 or more polypeptide(s) - useful in a vaccine immuno:diagnostic assays
                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                 B. burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         preventing Lyme borreliosis in mammals.
                                                                                                                                                 Dunn
                                                                                                                                                                                                29-APR-1994;
01-NOV-1993;
                                                                                                                                                                                                                                                                                      W09512676-A1
                                                                                                                                                                                                                                                                                                                                                             Borrelia burgdorferi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31-JUL-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAR75727;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAR75727 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                                                             N-PSDB;
                                                                                                                       WPI; 1995-215034/28
                                                                                                                                                                                                                                     27-OCT-1994;
                                  Example 1; Fig 12; 200pp; English.
                                                                                                                                                                        (ASUY-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155 AKEAILK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             be used to detect B. burgdorferi.
                                                                                                                                                JJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  for early diagnosis and prevention of Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 7; Conserv
                                                                                                            AAQ90714
                                                                                                                                                                        ASSOC
                                                                                                                                                 Luft
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      210 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                        UNIVERSITIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                  strain B31 outer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44-45;
                                                                                                                                                 뭔.
                                                                                                                                                                                                 94US-0235836.
93US-0148191.
                                                                                                                                                                                                                                     94WO-US12352
                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
1..633
                                                                                                                                                                                                                                                                                                            /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.2%; bu
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57pp; English.
                                                                                                                                                                                                                                                                                                              þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 7; DB 16; Pred. No. 79; 0; Mismatches
                                                                                   or more antigenic Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                  surface protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                        against Lyme borreliosis and in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Antibodies against this sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (OspC-B31).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

The present sequence is the B. burgdorferi strain surface protein C (OspC-B31). Using chemical or en

enzymatic B31,

```
RESULT 28
AAG28189
      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         peptide fragments of OspC-B31 were prepd., and analysed by western blot to assess their ability to bind different anti-OspC monoclonal antibodies. The information obtd. was used to locate antigenic domains in OspC-B31, the epitopes of which were mapped with the aid of site directed mutageness. Identical analyses were performed on a selection of Osp purified from a variety of B. burgdorferi strains, the results from which were utilised in the prepn. of a pool of antigenic Borrelia polypeptides, and corresponding polymucleotides. Chimaeric proteins comprising 2 or more antigenic Borrelia polypeptides, that do not naturally occur in the same infections, i.e. as a vaccine against Lyme borreliosis, in immunodiagnostic assays to detect anti-Borrelia antibodies or to measure T-cell reactivity.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches
 25-FEB-1999

05-MAR-1999

09-MAR-1999

23-MAR-1999

25-MAR-1999

01-APR-1999

01-APR-1999

16-APR-1999

11-APR-1999

21-APR-1999

23-APR-1999

23-APR-1999

23-APR-1999

24-APR-1999

06-MAY-1999

06-MAY-1999

06-MAY-1999

07-MAY-1999

11-MAY-1999

11-MAY-1999

11-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Protein identification; signal transduction pathway; metabolic hybridisation assay; genetic mapping; gene expression control; termination sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Arabidopsis thaliana protein fragment SEQ ID NO: 33315.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       17-OCT-2000 (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAG28189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                  25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9 AKEAILK 45
|||||||
5 AKEAILK·161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             h 3.2%; Score 7; DB 1 Similarity 100.0%; Pred. No. 79 7; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard; Protein; 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         210 AA;
                                                                                                                                                                                                                                                                                                                                                                                  2000EP-0301439
   S-0125788

S-0126785

S-0126785

S-012871462

S-012871462

S-01289145

S-0130449

S-0130510

S-0130510

S-0131449

S-0132486

S-0132486
                                                                                                                                                                                                                                                                                                                         3-0123180.
3-0123548.
                                                                                                                                                                                                                                                                                                                                      3-0121825.
3-0123180.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 16;
5. 79;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                promoter;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               pathway;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
   114-MAY-1999
118-MAY-1999
118-MAY-1999
121-MAY-1999
221-MAY-1999
221-MAY-1999
221-MAY-1999
231-MAY-1999
241-MAY-1999
251-MAY-1999
261-MAY-1999
261-M
9908-0134941
9908-0135123
9908-013523
9908-0136782
9908-0136782
9908-0137502
9908-0139454
9908-0139454
9908-0139452
9908-0139452
9908-0139452
9908-0139453
9908-0139456
9908-0139457
9908-0139457
9908-0139457
9908-0139459
9908-0139457
9908-0139459
9908-0139457
9908-0139459
9908-0139459
9908-0139459
9908-0139459
9908-0139459
9908-0139459
9908-0139459
9908-0139460
9908-0139460
9908-0139463
9908-0139463
9908-0139463
9908-0143342
9908-0143342
9908-0143342
9908-0143342
9908-0143342
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144333
9908-0144332
9908-0144333
9908-0144334
9908-0144334
9908-0144335
9908-0144333
9908-0144335
9908-0144333
```

27-JUL-1999 27-JUL-1999 27-JUL-1999 28-JUL-1999 02-AUG-1999 02-AUG-1999 02-AUG-1999 03-AUG-1999 04-AUG-1999 04-AUG-1999 05-AUG-1999 05-AUG-1999 06-AUG-1999 06-AUG-1999 06-AUG-1999

.Sn66

3-0146386. 3-0146388. 3-0146389. 3-0147038.

SD66 SD66 SD66 SD66 SD66

09-AUG-1999, 09-AUG-1999,

```
RESULT 29
AAY07075
ID AAY07
XX AAY07
XX AAY07
XX AAY07
XX Canc
XX Canc
XX PN PN PN PN PN 15-
PP PN 110
PR 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25-OCT-1999;
25-OCT-1999;
26-OCT-1999;
26-OCT-1999;
26-OCT-1999;
28-OCT-1999;
28-OCT-1999;
29-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22-JUN-1998;
17-JUL-1997;
10-OCT-1997;
10-OCT-1997;
10-OCT-1997;
11-OCT-1997;
The invention relates to a method for diagnosing a disorder characterised by expression of a human cancer associated antigen precursor coded for by a nucleic acid molecule (NAM). The method comprises: (a) contacting a biological sample isolated from a subject with an agent that specifically binds to the NAM, an expression product or a fragment of an expression product complexed with an HLA molecule; and (b) determining the interaction between the agent and the NAM or the expression product as a determination of the disorder. The products and methods can be used in the diagnosis, monitoring, research, or treatment of conditions characterised by the expression of various cancer associated antigens. The invention provides nucleic acid sequences and encoded polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cancer associated breast cancer; col prostate cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                           Pfreundschuh
Tureci O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo.
                                                                                                                                                                                                                                                                                                                    New isolated cancer associated nucleic acids and polypeptides isolated using sera from cancer patients, used to develop pro
                                                                                                                                                                                                                                                                                                                                                                                   WPI; 1999-132448/11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-JAN-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9904265-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Renal cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   02-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAY07075;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAY07075
                                                                                                                                                                                                                                                       Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      15-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (LUDW-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175
                                                                                                                                                                                                                                                                                                 solated using sera
or the diagnosis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . VLVDGLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ķ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LUDWIG INST CANCER RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gout
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard; Protein;
                                                                                                                                                                                                                                                       Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                Σ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       associated antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99US-0161405.

99US-0161406.

99US-0161359.

99US-0161361.

99US-0161361.

99US-0161920.

99US-0161992.

99US-0161993.

99US-0162142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98US-0102322.
97US-0896164.
97US-0061599.
97US-0061765.
97US-0948705.
97GB-0021697.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           colon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        98WO-US14679
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gure
Sahin
                                                                                                                                                                                                                                                          479;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                antigen;
                                                                                                                                                                                                                                                                                                 monitoring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.2%; but
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cancer; gastric
                                                                                                                                                                                                                                                       787pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ď,Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                O'Hare M, (
Scanlan MJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 7; DB 21; Pred. No. 85; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      233
                                                                                                                                                                                                                                                                                                 or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          precursor sequence.
                                                                                                                                                                                                                                                                                                 treatment
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Obata Y, (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                research;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21;
                                                                                                                                                                                                                                                                                                     of cancers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               renal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 228
                                                                                                                                                                                                                                                                                                                                                                                                                                                  τ E;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               treatment;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ę,
                                                                                                                                                                                                                                                                                                                       products
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             human;
lung cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

110-AUG-1999
111-AUG-1999
12-AUG-1999
13-AUG-1999
13-AUG-1999
13-AUG-1999
11-AUG-1999
20-AUG-1999
20-AUG-1999
22-AUG-1999
23-AUG-1999
23-AUG-1999
24-AUG-1999
27-AUG-1999
28-SEP-1999
29-SEP-1999
29-SEP-1999
21-OCT-1999
21-OCT-1999
13-OCT-1999
23-OCT-1999
23-OCT-1999
23-OCT-1999
23-OCT-1999

99US-0147038
99US-014704
99US-0147302
99US-014716
99US-014716
99US-014716
99US-0147416
99US-0147416
99US-0148319
99US-0148319
99US-0148319
99US-0148319
99US-0148319
99US-0149368
99US-01494722
99US-0149723
99US-0149723
99US-0151066
99US-0151066
99US-0151066
99US-0151066
99US-0151066
99US-0151066
99US-0151303

```
SSSS S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
      CC The invention relates to a protein (ABP25413-ABP30895) from group B CC streptococcus/GBS (Streptococcus agalactiae) or group A streptococcus/GAS (C (Streptococcus pyogenes), comprising one of 5483 sequences (S1), given in CC the specification. The proteins have antibacterial and antiinflammatory CC activity. (I), nucleic acids encoding (I), ABN66044-ABN71526 and CC antibodies that bind (I) are used in the manufacture of medicaments for CC the treatment or prevention of infection or disease caused by CC Streptococcus bacteria, particularly S. agalactiae and S. pyrogenes. CC Nucleic acids encoding (I) are used to detect Streptococcus in a CC biological sample. (I) is used to detect Streptococcus in a CC in a composition comprising (I) or a nucleic acid encoding (I), may be used as a vaccine or diagnostic composition. The disease caused by CC used as a vaccine or diagnostic composition. The disease caused by CC caid encoding (I) may be used to accombinantly produce (I) and may be used in gene therapy. Antibodies to (I) are used for affinity CC chromatography, immunoassays, and distinguishing/identifying CC Streptococcus profeins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local Similarity
Matches 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              27-OCT-2000;
24-NOV-2000;
07-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Streptococcus; GAS; GBS; group B streptococcus; Streptococcus agalactiae; group A streptococcus; Streptococcus pyogenes; antibacterial; antiinflammatory; infection; vaccine; meningitis; gene therapy.
                                                                                                                                                                                                                                                                                                        New Streptococcus protein for the treatment or prevention of infection or disease caused by Streptococcus bacteria, such as meningitis, and for detecting a compound that binds to the protein -
                                                                                                                                                                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                     Telford J,
Tettelin H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO200234771-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptococcus agalactiae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ABP26037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ABP26037 standard; Protein; 236 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cancer, rena
lung cancer.
                                                                                                                                                                                                                                                                                                                                                                                       WPI; 2002-352536/38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-OCT-2001; 2001WO-GB04789.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        which are cancer associated antigen precursors expressed in human breast cancer, renal cancer, colon cancer, gastric cancer, prostate cancer and
                                                                                                                                                                                                                                                                            Claim 1; Page 3281; 4525pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (GENO-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHIR-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CHIRON SPA
                                                                                                                                                                                                                                                                                                                                                                          ABN66668.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INST GENOMIC RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              233 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                Masignani
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000GB-0026333.
2000GB-0028727.
2001GB-0005640.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 polypeptide SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                    <
                                                                                                                                                                                                                                                                                                                                                                                                                                    Margarit Ros YI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 7; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Grandi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ġ,
                                                                                                                                                                                                                                                                                                                                                                                                                                    Fraser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 31
AAY29487
გ
                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SS XX
                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                      Query Match
                                                                                    represent specifically claimed polynucleotides, and AAY29486 to AAY295; represent amino acid sequences from the present invention. The lung tumour specific polynucleotides and polypeptides can be used in pharmaceutical compositions and vaccines to inhibit the development of lung cancer. They can also be used to detect lung cancer in a patient. Probes and antibodies derived from the lung tumour sequences are useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                               Lung tumour specific polynucleotides of lung cancer
                                                          Sequence
                                                                                                                                                The present invention describes lung tumour specific polynucleotides and tumour antigens. AAZ07144 to AAZ07246 and AAZ08301 to AAZ08325
                                                                                                                                                                                                                              N-PSDB;
                                                                                                                                                                                                                                        WPI; 1999-479187/40.
                                                                                                                                                                                                                                                         Frudakis TN,
                                                                                                                                                                                                                                                                                                23 - JUL - 1998 ;
                                                                                                                                                                                                                                                                                                                                               22-DEC-1998;
28-JAN-1998;
                                                                                                                                                                                                                                                                                                                                                                              26-JAN-1999;
                                                                                                                                                                                                                                                                                                                                                                                                05-AUG-1999.
                                                                                                                                                                                                                                                                                                                                                                                                                    WO9938973-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Human lung tumour protein LT86-6 predicted amino acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAY29487;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAY29487 standard; Protein; 238
                                                                             in detection of lung
                                                                                                                                                                             Example
                                                                                                                                                                                                                                                                              (CORI-)
                                                                                                                                                                                                                                                                                                         18-MAR-1998;
23-JUL-1998;
                                                                                                                                                                                                                                                                                                                                        28-JAN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         immunotherapy;
                                                                                                                                                                                                                                                                                                                             L8-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                105
  170 LNSGSVL
                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37 ELAKEAI 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ELAKEAI 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 7; Conserv
                    Similarity 7; Conserv
                                                                                                                                                                             2; Page 73-74; 171pp; English
                                                                                                                                                                                                                               AAZ07156.
                                                                                                                                                                                                                                                                              CORIXA
                                                           238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           236
                                                                                                                                                                                                                                                                                                                                                                                                                                                          tumour protein;
py; detection; ir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                    Conservative
  176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                         Lodes
                                                                                                                                                                                                                                                                                              98US-0040831.
98US-0122191.
98US-0122192.
                                                           ă,
                                                                                                                                                                                                                                                                              CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A,
                                                                                                                                                                                                                                                                                                                            98US-0015029.
98US-0040828.
                                                                                                                                                                                                                                                                                                                                                98US-0219245.
98US-0015022.
                                                                                                                                                                                                                                                                                                                                                                             99WO-US01642
                 3.2%; 5c.
100.0%; Pr
                                                                                                                                                                                                                                                          Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%;
                                                                             cancer.
                                                                                                                                                                                                                                                          Mohamath
                                                                                                                                                                                                                                                                                                                                                                                                                                                           n; therapy; diagnosis; lung cancer; vaccine; inhibition.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                              Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 7; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                     Mismatches
                                                                                                                                                                                                                                                         æ
                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                          Reed
                              DB 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2
                                                                                                                                                                                                         inhibiting
                                       20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        23;
                                                                                                                                                                                                                                                          SG
                    ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ٥,
                                      Length 238;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 236;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                     Indels
                                                                                                                                                                                                          the
                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                         AAY29571
                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

밁

16

LNSGSVL

```
RESULT 33
AAE13753
ID AAE13
XX
AC AAE13
XX
DT 26-FE
XX
Human
XX
Humar
KW Humar
KW antie
XX
OS Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 32
AAB44412
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                ş
                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  09-AUG-1999;
30-DEC-1999;
03-MAR-2000;
                                                                                                                                                                                                                                                                            The present sequence is given in a specification relating to compounds for therapy and diagnosis of lung cancer. Polypeptides comprising at least an immunogenic part of a lung tumour protein are disclosed. The polypeptides are useful for inhibiting the development of cancer, especially lung cancer. Samples of T cells expressing the polypeptides may be used to inhibit the development of cancer. The polypeptides are also useful for detecting and monitoring the progression of cancer, especially lung cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAB44412 standard;
                                                                                                                                                                                                                                                                                                                                                                        Example 2; Page 100; 243pp; English.
                                                                                                                                                                                                                                                                                                                                                                                             detecting,
                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Reed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 02-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-MAR-2000; 2000WO-US08560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         12-OCT-2000.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WO200060077-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             05-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB44412;
                             Human; lung tumour antisense-therapy;
                                                              Human
                                                                                 26-FEB-2002
                                                                                                                                                                                                                                                            Sequence
                                                                                                                                                                                                                                                                                                                                                                                                       Novel lung
                                                                                                      AAE13753;
                                                                                                                          AAE13753 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CORI-) CORIXA CORP.
                                                                                                                                                                                                 170 LNSGSVL 176
                                                                                                                                                                            16
          sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                      2000-638466/61.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tumour protein;
                                                                                                                                                                              LNSGSVL
                                                            lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        lung
                                                                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Lodes MJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        tumour-specific
                                                                                                                                                                                                                                                                                                                                                                                             tumor polypeptides and polynucleotides, useful monitoring or treating cancer, especially lung
                                                            tumour-specific
                                                                                                                                                                                                                                                             238 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0285323.
99US-0370838.
99US-0476235.
2000US-0518809.
                                                                                                                                                                                                                    Conservative
                                                                                                                                                                              22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (first
                                                                                (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein;
                                                                                                                          Protein;
                               vaccine;
                                      protein;
                                                                                                                                                                                                               3.2%; 500
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry)
                                                                                entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mohamath
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    lung cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       antigen
                                                            protein LT86-6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      238
                              immunostimulant;
immune response;
                                                                                                                          238
                                                                                                                                                                                                                              Score 7; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                           $
                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cytostatic; vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Secrist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        encoded by
                                                                                                                                                                                                                              DB 21;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ξ
                              cytostatic; gene therapy; lung cancer; LT86-6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDNA #22
                                                                                                                                                                                                                    <u>,,</u>
                                                                                                                                                                                                                                      Length 238;
                                                                                                                                                                                                                                                                                                                                                                                                         for
                                                                                                                                                                                                                                                                                                                                                                                               cancer
                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                    0
```

```
RESULT 34
AAY29489
  밁
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29-MAR-2000;
05-JUN-2000;
18-AUG-2000;
          22-DEC-1998;
28-JAN-1998;
28-JAN-1998;
18-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to isolated lung tumour-specific proteins and their corresponding cDNA molecules. Lung tumour-specific proteins and their antigen-presenting cells are useful for stimulating and/or expanding T cells specific for a tumour protein, and for inhibiting the development of cancer. The invention also relates to a composition useful for stimulating an immune response, and for treating cancer. The lung tumour specific oligonucleotide is useful in gene therapy and for diagnosis, detection and treatment of lung cancer. The present sequence is human lung tumour-specific protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New human lung-specific polynucleotides and polypeptides diagnosis and treatment of disease e.g. lung cancer - \,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-OCT-2001.
                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WPI; 2001-639201/73.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Henderson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Reed SG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               22-SEP-2000;
01-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200172295-A2
                                                                                                                           Homo
                                                                                                                                                         Human;
                                                                                                                                                                           Human lung tumour protein LT86-8 predicted amino acid sequence
                                                                                                                                                                                                 13-OCT-1999
                                                                                                                                                                                                                     AAY29489;
                                                                                                                                                                                                                                         AAY29489 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14-DEC-2000;
                                                              26-JAN-1999;
                                                                                  05-AUG-1999
                                                                                                      WO9938973-A2
                                                                                                                                             immunotherapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (CORI-)
                                                                                                                                                                                                                                                                                                             170 LNSGSVL 176
                                                                                                                                                                                                                                                                                           16
                                                                                                                          sapiens
                                                                                                                                                                                                                                                                                           LNSGSVL
                                                                                                                                                                                                                                                                                                                                 l Similarity
7; Conserv
                                                                                                                                                         lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAD23142.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORIXA CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŖĄ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lodes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Page 156;
                                                                                                                                                                                                                                                                                                                                                                           238 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; 2000US-0538037.
; 2000US-0588937.
; 2000US-0540878.
; 2000US-234517P.
; 2000US-0704512.
; 2000US-0738973.
                                                                                                                                              tumour protein; therapy;
py; detection; inhibition.
                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2001WO-US09991
                                                                                                                                                                                                (first entry)
                                                                                                                                                                                                                                                                                           22
98US-0219245.
98US-0015022.
98US-0015029.
98US-0040828.
98US-0040831.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fling
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3
                                                              99WO-US01642
                                                                                                                                                                                                                                         Protein; 243
                                                                                                                                                                                                                                                                                                                                              100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    378pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mohamath R, SP, Algate
                                                                                                                                                        therapy; diagnosis;
                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    English.
                                                                                                                                                                                                                                                                                                                                              Score
Pred
                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PΑ,
                                                                                                                                                                                                                                                                                                                                      e 7;
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Secrist H,
A, Elliot
                                                                                                                                                                                                                                                                                                                                              DB 22;
. 88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Σ
                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Benson DR,
Mannion
                                                                                                                                                                                                                                                                                                                                                       Length 238;
                                                                                                                                                         lung cancer; vaccine;
                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٦,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indirias
J, Kalos
                                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      93
```

18-MAR-1998

```
RESULT 35
AAY29491
   밁
                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lung .
                                                                                                                   22-DEC-1998;
28-JAN-1998;
28-JAN-1998;
18-MAR-1998;
                                                                                      18-MAR-1998;
23-JUL-1998;
23-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The present invention describes lung tumour specific polynucleotides and tumour antigens. AAZ07144 to AAZ0726 and AAZ08315 to AAZ08325 represent specifically claimed polynucleotides, and AAY29486 to AAY29571 represent amino acid sequences from the present invention. The lung tumour specific polynucleotides and polypeptides can be used in pharmaceutical compositions and vaccines to inhibit the development of lung cancer. They can also be used to detect lung cancer in a patient. Probes and antibodies derived from the lung tumour sequences are useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23-JUL-1998;
23-JUL-1998;
                   N-PSDB;
                                                                                                                                                                                                                                                 Human; lung tumour protein; therapy; diagnosis; immunotherapy; detection; inhibition.
                                                                                                                                                                                                                                                                                                                                          AAY29491 standard; Protein; 243 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             N-PSDB;
Lung tumour specific polynucleotides
                              WPI; 1999-479187/40
                                                                                                                                                                     26-JAN-1999;
                                                                                                                                                                                       05-AUG-1999
                                                                                                                                                                                                           W09938973-A2
                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                Human
                                                                                                                                                                                                                                                                                                    13-OCT-1999
                                                                                                                                                                                                                                                                                                                       AAY29491;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          in detection of lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Example 2; Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Frudakie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (CORI-) CORIXA
                                                                                                                                                                                                                                                                                                                                                                                                              170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                            30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           tumour specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1999-479187/40.
                                                                                                                                                                                                                                                                                                                                                                                            LNSGSVL 36
                                                                                                                                                                                                                                                                              lung
                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAZ07158.
                                                                   CORIXA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'n,
                                                Ä
                                                                                                                                                                                                                                                                                tumour
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        243 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                    (first entry)
                                                Lodes
                                                                                      98US-0219245.
98US-0015022.
98US-0015029.
98US-0040828.
98US-0040831.
98US-0122191.
98US-0122192.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lodes MJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-0122191.
98US-0122192.
                                                                    CORP.
                                                                                                                                                                     99WO-US01642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             75-76;
                                                                                                                                                                                                                                                                               protein
                                                 3
                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         polynucleotides for inhibiting the development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            171pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mohamath
                                                Mohamath
                                                                                                                                                                                                                                                                               LT86-11 predicted amino acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 7; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø
                                                Ŗ
for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Reed
                                                Reed
inhibiting the development
                                                                                                                                                                                                                                                                                                                                                                                                                                                   20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SG
                                                SG
                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length
                                                                                                                                                                                                                                                           lung
                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                            cancer; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                               ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
RESULT 36
AAB44414
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                    09-AUG-1999;
30-DEC-1999;
03-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      The present invention describes lung tumour specific polynucleotides and tumour antigens. ARZ07144 to ARZ07246 and ARZ08301 to ARZ08325 represent specifically claimed polynucleotides, and ARY29486 to ARY29577 represent amino acid sequences from the present invention. The lung tumour specific polynucleotides and polypeptides can be used in pharmaceutical compositions and vaccines to inhibit the development of lung cancer. They can also be used to detect lung cancer in a patient. Probes and antibodies derived from the lung tumour sequences are useful
                       especially lung cancer.
                               The present sequence is given in a specification relating to compounds for therapy and diagnosis of lung cancer. Polypeptides comprising at least an immunogenic part of a lung timour protein are disclosed. The polypeptides are useful for inhibiting the development of cancer, especially lung cancer. Samples of T cells expressing the polypeptides may be used to inhibit the development of cancer. The polypeptides are also useful for detecting and monitoring the progression of cancer,
                                                                                                                                                          Novel lung tumor polypeptides and detecting, monitoring or treating
                                                                                                                                                                                                WPI; 2000-638466/61.
N-PSDB; AAC79069.
                                                                                                                                                                                                                                     Reed
                                                                                                                                                                                                                                                                                                                          02-APR-1999;
                                                                                                                                                                                                                                                                                                                                                   30-MAR-2000; 2000WO-US08560
                                                                                                                                                                                                                                                                                                                                                                                                     WO200060077-A2
                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of lung
                                                                                                                                                                                                                                                                                                                                                                             12-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Human lung tumour-specific antigen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAB44414;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAB44414 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                             (CORI-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170 LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           detection of lung cancer.
                                                                                                                                                                                                                                    SG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                    tumour protein; lung cancer; cytostatic; vaccine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LNSGSVL
                                                                                                                                    2; Page 101; 243pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              cancer
                                                                                                                                                                                                                                                             CORIXA CORP
                                                                                                                                                                                                                                    Lodes MJ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                      2000US-0518809
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                 99US-0285323.
99US-0370838.
99US-0476235.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Å,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    78-79; 171pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.2%; oc.
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     entry)
                                                                                                                                                                                                                                     Mohamath
                                                                                                                                    English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
Pred.
                                                                                                                                                                                                                                    ,₩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                          polynucleotides, useful cancer, especially lung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4 7;
No.
                                                                                                                                                                                                                                     Secrist
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             encoded by cDNA #24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                          for
                                                                                                                                                             cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAY29571
```

Sequence

밁 Ś

```
RESULT 37
AAB44417
AAE13755
ID AAE1
XX
AC AAE1
XX
DT 26-F
                                                                                                                                  В
                                                                                  S
                                               RESULT 38
                                                                                                    Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                         02-APR-1999;
09-AUG-1999;
30-DEC-1999;
                                                                                                                                                                                                                                    Novel lung detecting,
                                                                                                                                                                                                                                                                                    Reed
                                                                                                                                                                                                                                                                                                                                                                                                                   Eung
                                                                                                                                                      The present sequence is given in a specification relating to compounds for therapy and diagnosis of lung cancer. Polypeptides comprising at least an immunogenic part of a lung tumour protein are disclosed. The polypeptides are useful for inhibiting the development of cancer, especially lung cancer. Samples of T cells expressing the polypeptides may be used to inhibit the development of cancer. The polypeptides are also useful for detecting and monitoring the progression of cancer,
                                                                                                                                                                                                                                                                                                                                                                                                                                   Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                   05-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAB44417;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB44417 standard;
                                                                                                                                 Sequence
                                                                                                                                                                                                                     Example 2;
                                                                                                                                                                                                                                                             N-PSDB;
                                                                                                                                                                                                                                                                                                                 03-MAR-2000; 2000US-0518809
                                                                                                                                                                                                                                                                                                                                                       30-MAR-2000; 2000WO-US08560
                                                                                                                                                                                                                                                                                                                                                                      12-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                      WO200060077-A2.
                                                                                                                                                                                                                                                                                                                                                                                                     Homo
 26-FEB-2002
                 AAE13755;
                                                                                                                                                 especially
                               AAE13755
                                                                                                                                                                                                                                                                                                   (CORI-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170 LNSGSVL 176
                                                                                    170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity res 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30
                                                                      21
                                                                                                                                                                                                                                                                                   SG,
                                                                                                                                                                                                                                                                                                                                                                                                    sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                   tumour protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LNSGSVL 36
                                                                                    LNSGSVL 176
                                                                                                                                                                                                                                                                    2000-638466/61.
                                                                      LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                                                   lung
                                                                                                    Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                  CORIXA CORP
                                                                                                                                                                                                                                                             AAC79072.
                               standard; Protein; 243
                                                                                                                                                                                                                                                                                  Lodes MJ,
                                                                                                                                                 lung
                                                                                                                                  243
                                                                                                                                                                                                                     Page 103;
                                                                                                                                                                                                                                    monitoring or treating
                                                                                                                                                                                                                                                                                                                                                                                                                                   tumour-specific
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                   3.2%; Silarity 100.0%; Conservative 0;
                                                                      27
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first
 (first entry)
                                                                                                                                                                                                                                                                                                                        99US-0285323.
99US-0370838.
99US-0476235.
                                                                                                                                  8
                                                                                                                                                 cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                   lung cancer; cytostatic; vaccine
                                                                                                                                                                                                                     243pp;
                                                                                                                                                                                                                                                                                    Mohamath
                                                                                                                                                                                                                                                                                                                                                                                                                                   antigen
                                                                                                    Score 7; DB 2; Pred. No. 90; O; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  243
                                                                                                                                                                                                                     English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 7; DB 21;
Pred. No. 90;
                                                                                                                                                                                                                                                                                   ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                Ā
                                                                                                                                                                                                                                     polynucleotides, useful cancer, especially lung
                                                                                                                                                                                                                                                                                    Secrist
                                                                                                                                                                                                                                                                                                                                                                                                                                   encoded by
                                                                                                       DB
90;
                                                                                                                                                                                                                                                                                   Ξ
                                                                                                                  21;
                                                                                                                                                                                                                                                                                                                                                                                                                                    cDNA #27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٥,
                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 243;
                                                                                                                   Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                     Indels
                                                                                                                                                                                                                                     cancer
                                                                                                                                                                                                                                              for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                     0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                     0
RESULT 39
AAE13758
ID AAE13
XX AAE13
XX AAE13
XX AAE13
XX AAE13
XX Human
XX Human
XX Human
XX ATI
XW Human
XX ATI
XW Human
XX ATI
XW Homo
XX ATI
PD 04-00
                                                                                                                                                                                                                      뫄
                                                                                                                                                                       á
                                                                                                                                                                                        Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                New human
diagnosis
                                                                                                                                                                                                                                                                                                                                                                                      Reed
                                                                                                                                                                                                                                                                                                                                                        N-PSDB;
                                                                                                                                                                                                                                                                                                                                                               WPI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Homo
                                                                                                                                                                                                                       Sequence
                                                                                                                    AAE13758 standard;
                                                                                                                                                                                                                                                                                                                                                                               Henderson
                 WO200172295-A2
                               Homo sapiens
                                              Human; lung tumour antisense-therapy;
                                                                      Human
                                                                                     26-FEB-2002
                                                                                                                                                                                                                                      is human
                                                                                                                                                                                                                                                                                                                                                                                                     (CORI-)
                                                                                                                                                          30
                                                                     lung
```

tumour-specific

protein

LT86-11.

protein; vaccine;

immunostimulant; cytostatic; gene therapy; immune response; lung cancer; LTB6-11.

(first

entry)

Protein;

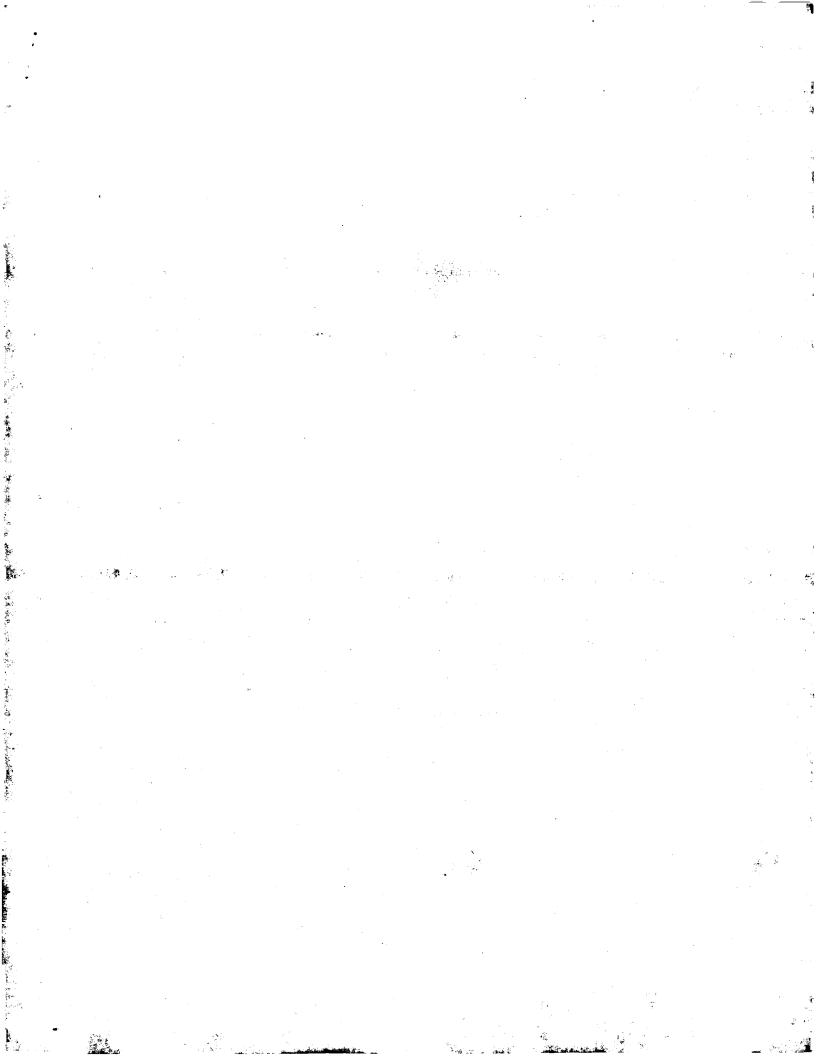
243

₽

```
29-MAR-2000;
05-JUN-2000;
18-AUG-2000;
22-SEP-2000;
01-NOV-2000;
                                                                                                                                                                                                                                            The invention relates to isolated lung tumour-specific proteins and their corresponding cDNA molecules. Lung tumour-specific proteins and their antigen-presenting cells are useful for stimulating and/or expanding T cells specific for a tumour protein, and for inhibiting the development of cancer. The invention also relates to a composition of the development of cancer.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human; lung tumour protein;
antisense-therapy; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human lung tumour-specific protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO200172295-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          28-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                      Example 2; Page 157-158; 378pp; English.
                                                                                                                                                                      seful for stimulating an immune response, and for treating cancer. The lung tumour specific oligonucleotide is useful in gene therapy and for diagnosis, detection and treatment of lung cancer. The present sequence is human lung tumour-specific protein.
                                                                                                                                                                                          diagnosis,
                                170 LNSGSVL 176
                                                                 Local Similarity
les 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                          2001-639201/73.
DB; AAD23144.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SG,
LNSGSVL 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORIXA CORP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lodes
RA, F
                                                                                                                                                                                                                                                                                                                                                                                       lung-specific and treatment
                                                                                                                                         243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000US-0538037.
2000US-0588937.
2000US-0640878.
2000US-234517P.
2000US-0704512.
2000US-0738973.
                                                                   Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2001WO-US09991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s MJ,
Fling
                                                                                                                                         ΑĀ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mohamath R,
SP, Algate
                                                                                                                                                                                                                                                                                                                                                                                     polynucleotides of disease e.g.
                                                                   Score 7; DB 2; Pred. No. 90; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 immunostimulant; cytostatic; gene therapy;
immune response; lung cancer; LT86-8.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₽A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Secrist H, B
A, Elliot M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LT86-8
                                                                                    DB 22;
                                                                                                                                                                                                                                                                                                                                                                                        and F
                                                                                                                                                                                                                                                                                                                                                                                        polypeptides
g cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Benson DR,
Mannion
                                                                       0
                                                                                                      Length 243;
                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ģ
                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indirias
                                                                       o
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kalos
                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₹3
                                                                       0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 40
                                                                                                                                                                                                                                                                                                                                                                                             Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
       22-DEC-1998;
28-JAN-1998;
28-JAN-1998;
18-MAR-1998;
18-MAR-1998;
23-JUL-1998;
23-JUL-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     29-MAR-2000;
05-JUN-2000;
18-AUG-2000;
22-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The invention relates to isolated lung tumour-specific proteins and their corresponding cDNA molecules. Lung tumour-specific proteins and their antigen-presenting cells are useful for stimulating and/or expanding T cells specific for a tumour protein, and for inhibiting the development of cancer. The invention also relates to a composition
                                                                                                                                                                                     Human; lung tumour protein; therapy; diagnosis; lung cancer; vaccine; immunotherapy; detection; inhibition.
                                                                                                                                                                                                                                                                      AAY29495;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               useful for stimulating an immune response, and for treating cancer. The lung tumour specific oligonucleotide is useful in gene therapy and for diagnosis, detection and treatment of lung cancer. The present sequence is human lung tumour-specific protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New human lung-specific polynucleotides and polypeptides diagnosis and treatment of disease e.g. lung cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Reed
                                                                                                                                            WO9938973-A2
                                                                                                                                                                                                                                                                                           AAY29495 standard; Protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Example 2; Page 159; 378pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Henderson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-NOV-2000;
14-DEC-2000;
                                                                                                26-JAN-1999;
                                                                                                                      05-AUG-1999
                                                                                                                                                                                                                                               13-OCT-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CORI-)
                                                                                                                                                                                                                                                                                                                                                                         170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2001-639201/73.
)B; AAD23147.
                                                                                                                                                                                                                        lung tumour
                                                                                                                                                                                                                                                                                                                                                                                                Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORIXA CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lodes MJ, N
n RA, Fling (
                                                                                                                                                                                                                                                                                                                                                                                                                                            243 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; 2000US-0538037.
; 2000US-0588937.
; 2000US-0640878.
; 2000US-234517P.
; 2000US-0704512.
; 2000US-0738973.
                                                                                                                                                                                                                                                                                                                                                                                            3.2%; Score 7; DB:
llarity 100.0%; Pred. No. 90
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                    27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2001WO-US09991
                                                                                                                                                                                                                                              (first entry)
     98US-0219245.
98US-0015022.
98US-0015029.
98US-0040828.
98US-0040828.
98US-0040831.
98US-0122191.
                                                                                                99WO-US01642
                                                                                                                                                                                                                        protein LT86-15 predicted amino acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mohamath R,
SP, Algate
                                                                                                                                                                                                                                                                                            244 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Secrist H, B
PA, Elliot M,
                                                                                                                                                                                                                                                                                                                                                                                                         DB 22;
o. 90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Benson DR,
Mannion
                                                                                                                                                                                                                                                                                                                                                                                                                    Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indirias
J, Kalos
                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₹ 5
                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
밁
                                                                            Ś
                                                                                                                                                            Search completed: April Job time : 96 secs
                                                                                                        Matches
                                                                                                                    Query Match
Best Local
                                                                                                                                                                                The present invention describes lung tumour specific polynucleotides and tumour antigens. AAZ07144 to AAZ07246 and AAZ08301 to AAZ08325 represent specifically claimed polynucleotides, and AAZ9846 to AAY29571 represent amino acid sequences from the present invention. The lung tumour specific polynucleotides and polypeptides can be used in pharmaceutical compositions and vaccines to inhibit the development of lung cancer. They can also be used to detect lung cancer in a patient. Probes and antibodies derived from the lung tumour sequences are useful in detection of lung cancer.
                                                                                                                                                           Sequence
                                                                                                                                                                                                                                                                                                                        Example
                                                                                                                                                                                                                                                                                                                                                              Lung tumour specific polynucleotides
                                                                                                                                                                                                                                                                                                                                                                                                                                  Frudakis TN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                           (CORI-) CORIXA CORP
                                                                             170 LNSGSVL 176
                                                   22
                                                                                                                                                                                                                                                                                                                                                                                        1999-479187/40.
DB; AAZ07164.
                                                    LNSGSVL
                                                                                                      Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                  cancer
                                                                                                                                                                                                                                                                                                                       2; Page 81-82; 171pp; English
                                                                                                                                                            244 AA;
                                                                                                        Conservative
                                                      28
                                                                                                                                                                                                                                                                                                                                                                                                                                Lodes
                                                                                3.2%; Suc. 100.0%; Pred. No. - 100.0%; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                  3
            9, 2003, 14:43:02
                                                                                                                                                                                                                                                                                                                                                                                                                                Mohamath
                                                                                                                                                                                                                                                                                                                                                                                                                                æ
                                                                                                                                                                                                                                                                                                                                                               for inhibiting the development
                                                                                                                                                                                                                                                                                                                                                                                                                                  Reed
                                                                                                                    DB 20;
                                                                                                                                                                                                                                                                                                                                                                                                                                  SG
                                                                                                        0,
                                                                                                                                  Length 244;
                                                                                                        Indels
                                                                                                        <u>.</u>
                                                                                                      Gaps
```



```
Command line parameters:

-MODEL-frame+_p2n.model -DEV=xlh
-Q-/cgn2_1/USPTO_spool/US10034500/runat_02042003_092745_19713/app_query.fasta_1.391
-Q=/cgn2_1/USPTO_spool/US10034500/runat_02042003_092745_19713/app_query.fasta_1.391
-DB=EST_QFWT=fastap_-SUFFIX=rst_-MINWATCH=0.1 -LOOPCL=0 -LOOPEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-DOCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=40 -MODE=LOCAL
-OUTPWT=pto -NONM=ext -HEAPSIZE=50 -MINLENS=0 -MAXLENS=2000000000
-USER=US10034500_@CGN_1 1 1456_@TUNAT 02042003_092745_19713 -NCPU=6 -ICPU=3
-NO_XLPXY -NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WALT -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS=1 -XGAPENT=0.5 -FGAPOP=6 -FGAPEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                          Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Title:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
2
3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB seq length: 0
DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -YGAPEXT=0.5 -DELOP=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-034-500-2
1119
1 AEVTASCTKRVESY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xgapop 10.0 , Y
Ygapop 10.0 , Y
Fgapop 6.0 , E
Delop 6.0 , I
   16154066 seqs, 8097743376 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              April
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AEVTASCTKRVESYNYLVDY.....QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Copyright
                                                                                                                                                                                                         em estro:
em htc: *
gb est1: *
gb est2: *
gb est3: *
gb est3: *
                                                                                                                                                                                                                                                                                                                                       em_estov:*
em_estpl:*
em_gss_other:*
em_gss_pro:*
em_gss_rod:*
                                           em gss hum: *
em gss inv: *
em gss pln: *
em gss vrt: *
em gss fun: *
em gss mam: *
em gss mus: *
                                                                                                                                                                                                                                                                                                                                                                                          em_esthum:*
em_estin:*
                                                                                                                                                                                                                                                                                                                                                                                                                      em_estba:*
                                                                                                                                             gb_gss:*
em_gss_h
                                                                                                                                                                           em_estfun:*
em_estom:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8, 2003, 04:54:34 ; Search time 1360 Seconds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.4 p5 4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.5
7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (without alignments)
2596.041 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    32308132
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

o (	a		G		ი						O			a	ი						Ω		ი		O				o ·	a i	Ω		(	נ					O				ი	Result
5		43	42	41	40	39	38	37	36	<b>ω</b> 5	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	1 1	12	1 7	10	οα	<b>,</b>	1 0	· σ	4	ω	N	ш	No.
	80	80.5		81		81	81	81	1.	1	81.5	1.	82	82	82	82	82	82	82	٥	•	2	83	8		83.5		8	•	4	٠.	85.0		D (	90.0		` «	. 7	87.5	88		90	9	Score
7.1	7.1	7.2	•	•	7.2	7.2	7.2	7.2	7.3	7.3	7.3	7.3	•	٠	7.3	٠		7.3	7.3	7.4	7.4	7.4		7.4	7.5	7.5	7.5	7.5	7.6		٠.	7.6	7 .	1 .	1 .	ı . ı .	•	7.8	7.8	7.9	•	8.0		Query Match
590	515	966	554	1071	764	656	628	601	1713	918	867	531	2933	987	699	605	560	524	405	1007	611	573	886	395	907	625	1144	588	835	801	713	917	1411	0 P	94.0	908		1047	641	831	1859	9	779	Length
17	10	14	10	12	9	12	17	12	Ľ	14	12	12	11	12	17	10	10	10	12	17	17	13	17	9	17	10	14	13	14	14	1.	17	3 :	17	17	: [	: [	14	17	12	11	12	17	DB.
AZ790944	AV954108	BQ718678	BE016028	BF246267	AI684487	BG850892	BH563226	BG447392	AY104471	BQ732001	BF304340	BE757248	AK008659	BF238073	BH538458	BE585416	BE599098	BE596201	BG463740	CNS06H7O	AZ934444	BI540501	BH132626	AI545929	CNS06W1A	BE372805	BM911554	BI611208	BQ792380	B0518708	BM246457	AZ203552	BG491140	CNCOSHE	DF071111	80109553	BJ361347	BQ879640 ·	BH245004	BG286204	AK019914	BG518685		ID
90944 2M0035	110	7	602	626	AI684487 wa82f03.x	BG850892 1024029F1	BOGI	BG447392 GA_Eb004	AY104471 Zea mays		BF304340 601887241	57248	K008659	8073	38458	5416	PI1_85_	PI1_50_	EM1_51	13	вл ва	BI540501 453806 MA	BH132626 ENTNV76TF	AI545929 fb66b03.y	AL417860 T3 end of	BE372805 601224321	AGE	BI611208 RH17375.5	BQ792380 EST 8835	BO518708 EST626123	BM246457 K0738D11-	AZ203552 SP 0081 B	BG491140 602519984	7467	AZEBILL BALLONG	01507 60334818	BU361347 BU361347	79640 AGENCOU	45004	6204 60238302	9914 Mus	685 60257854	063089 RPCI-2	Description

## ALIGNMENTS

	AUTHORS	REFERENCE			ORGANISM	SOURCE	KEYWORDS	VERSION	ACCESSION		DEFINITION	Locus	вн063089/с	RESULT 1
Tsegave.G., Geer.K., Krol.M., Shvartsbevn.A., Gebregeorgis.E.,	Zhao, S., Nierman, W., Malek, J., Shatsman, S., Akinret, B., Levins, M.,	1 (bases 1 to 779)	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	Mus musculus	house mouse.	GSS.	BH063089.1 GI:14877343	BH063089	DNA sequence.	RPCI-24-355L8.TJ RPCI-24 Mus musculus genomic clone RPCI-24-355L8,	BH063089 779 bp DNA linear GSS 18-JUL-2001		

```
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
밁
                         5
                                                                 밁
                                                                                                  Ś
                                                                                                                                       밁
                                                                                                                                                                 5
                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .
No
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                     503
                                                                                                                                                                                                               617
                                                                                                                                                                                                                                                                                    819
443
                                  110
                                                                                                                                           563
                                                                                                                                                                                                                                                                                                                                                                                                                            734
                                                                                                                                                                          85
                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                                                                                     46
                                                                                                                                                                                                                                                                                                                                                                                           32
                                                                                                                                                                                                                                                                                                                                                                                                                                                               16
                         eAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAsp----
                                                                                                                                                                                                                                                                                                                                                      TCTTCAGGCCACACTAGAAGAAAGTAAGGGTTAGAAGTTGCCAGAGAAGGCTGTTTC---
CCATCAGATGATGCCTCGAGGAGCAGTAGTCCTTCTAAAGCAGAGATAGGCATTCTGCAG
                                                                 GAGACCTCATTGGATAGGAGAGCCATCTGAACTTCACTCTGCACCAAGAAGCACTGTCTG 444
                                                                                                                                       CATAGGCAGTGATCCATTTGTGCAGTGTTGAGTGTAATTCCTATGCAGCCACAGCTCTTG 504
                                                                                                                                                                        rīleLysSerAsp-----
                                                                                                                                                                                                                                                                                                                     IleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyr
                                                                                                                                                                                                                                                                                                                                                                                                                          TATAAGCTGCAGTATGAGGGGAGAAGCATGCTGCTTATTCAAGCTGTGCAGGTAAAGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrLeuValAspTyrSerGlySerMetMetMetLysHisValAlaVal------
                                                                                                    uThrPro-----ValGlyAspGlyIleLysMetHis-------GluThrValIl 110
                                                                                                                                                                                                                                                SerValIleIleProGlnGlySerTrpAsnSer-CysValAlaGluCysAlaValAsnTh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Clones are derived from the mouse BAC library RPCI-24. For BAC library availability, please contact Pieter de Jong (pdejong@mail.cho.org). Clones may be purchased from BACPAC Resources (http://www.chori.org/bacpac/orderingframe.htm). BAC page: http://ww .tigr.org/tdb/bac_ends/mouse/bac_end_intro.html plate: 355 row: L column: 8 Seq primer: SP6 Class: BAC ends.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Department of Eukaryotic Genomics
The Institute for Genomic Research
9712 Medical Center Dr., Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mouse BAC End Sequences from Library RPCI-24 Unpublished (1999)
Other_GSSs: RPCI-24-355L8.TV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Shaying Zhao
                                                                                                                                                                                                               --CTGCTGGAAGATCACTCTTGGTCATCCGTTAGTGGCCCAACTGAACATTAGTAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301 838 0200
301 838 0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    szhao@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            മ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /cell_type="Spleen/Brain"
/note="Vector: pTARBAC1; Site 1: BamH1; Site 2: BamH1;
/note="Vector: pTARBAC1; Site 1: BamH1; Site 2: BamH1;
RPCI-24 Mouse BAC Library produced by Pieter de Jong. The
library was cloned in the pTARBAC1 cloning vector at the
BamH1 sites using MboI partially digested male C57BL/6J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Mus musculus"
/strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="taxon:10090"
/clone="RPCI-24-355L8"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /sex="Male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      clone_lib="RPCI-24"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                       -----ArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLys 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              x BH063089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.499
91.00
41.25%
24.51%
8.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               de Jong, P. and Fraser, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         163 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-779)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            254 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ¥
                                                                                                                                                                        -LeuGluIlePheGlyArgLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                779
63
43
62
89
                                -----G1
                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                                                          96
                                                                                                                                                                                                             564
                                                                                                                                                                                                                                                85
                                                                                                                                                                                                                                                                                  618
                                                                                                                                                                                                                                                                                                                                                        618
                                                                                                                                                                                                                                                                                                                                                                                                                                                               μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               end
```

```
RESULT 2
BG518685
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                        Alignment
                                      Pred. No.:
  Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCATACAGTAGTTGGCAAGTCTGGATAAAGAAAATTACCAACGACAGTCCAAGAGTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     yHisAsnAsnLeuGlyMetAsn-ProValGluGluVal---LysSerIleTyrGlnThrA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuValThrGlu-------GluValValValLeuArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTCCAAACGTACTTTTAATGGATGATCACATTATATCCTTTCTA-----A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         snProAsnValCysPhe-----HisValValSerPheAlaAspAspAlaGluGlyL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACTGTAACTGAATTAATCTCCTTACCAGAACTCATAATAATCAGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTTAAGCTGTTCTCGTGAATCACTTGTAATTACTAAACAATCTCATGCCCAGGGGATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn-----ProAlaValCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGGCACTGTTAAAACTCAATAAATGACTGCTTACCACAGAGCACAATACAATCCCTTATA 219
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ysAlaIleIle----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Gilbert Smith, Ph.D.
cDNA Library Preparation: Life Technologies,
cDNA Library Arrayed by: The I.M.A.G.E. Conso
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 797)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, M
                                                                                                                                                                                                                                                                                                                                                                                                         DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov plate: LLAM8536 row: b column: 13 High quality sequence stop: 795.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           602578549F1 NCI_CGAP_Lu29 Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BG518685.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.
                                                                                                                    200
                                                                                                                                                                                                            /strain="CZECH II"
/db zref="taxon:10090"
/clone="IMAGE:3491628"
/clone_lib="NGI_CGAP_Lu29"
/tlssue_type="spontaneous tumor, m/tlssue_type="spontaneous tumor, m/tlssue_type="spontaneous"
/tlab_host="DH10B"
                                                                                                            /note="Organ: lung; Vector: pCMV-SPORT6; Site_1: Sall; Site_2: NotI; Cloned unidirectionally. Primer: Oligo of Library constructed by Life Technologies. Investigator providing samples: Gilbert Smith, NIH"

167 c 230 g 199 t 1 others
                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                     organism="Mus musculus"
strain="CZECH II"
0.699
90.00
43.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GI:13513799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          --GlnGlupheValAsnSerValPheCysGlnGluGlnIle 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             797 bp mRNA linear Mus musculus cDNA clone
  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----AspGln-IleValAlaLeuAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Consortium
                                                                                                                                                                                                                                                       metastatic to mammary.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IMAGE:3491628
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST 02-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         279
                                                                                                                                                                              ď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ű
```

AUTHORS

```
PUBMED
REFERENCE
                                                                                                                                                                    PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 3
AK019914
                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity: Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x BG518685 (1-797)
                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Snoor
                                                                                                                                                                                                       TITLE
JOURNAL
MEDLINE
                                                        JOURNAL MEDLINE
                                                                                                               TITLE
                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                          ORGANISM
   AUTHORS
                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              48 AlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGAGTAGCTGCCAAACTTAATGTTGCTCCAGTTTCTGACATCATTGAG---ATCAAGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrValIleAsnGlnMetProProGlnAlaAlaVal-----IleLeuLeuThrAspGly 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAGTGTGATGAGAAAGTA------AAGGTGTTTTCTGTTCGAGGAACATCTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---CysGlnGluGlnIleLeuValThrGluGluValValValLeuArgGlyValAsnPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCT------GACACATTTGTGAGAACTATCTATGCAGGAAATGCGTTGTGTACAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProAlaValCysGlnGluPheValAsnSerValPhe-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAGTTCAGTTACACAGACATCTGTGCTGGAGGCGTCTGCTTTTGGAAAGAACCTTCTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGCATACAAAGGCCTCCTTCCAGAGGAACTCACACCGTTGATTTGGGAAACTCAGAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGTGGTACAGGATCTATGTAAAGTAGCTGGCGTAGCAAAGGTTCTGGTGGCTCAGCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCAGCTGGACGTCTTGGAGGTGAAGTGTCCTGCTTAGTAGCTGGAACCAAGTGT----GAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGlu 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTGGTAATAGCTGAGCATGCAAATGATTCCCTAGCACCCATTACTCTAAATACTATCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCAGCGGCGCTGGGCAGCTCCGGTCGGGCGCCTCTATTGTCTCCGTTTTCAGAGTACC
                                                                      Carninci, P., Shibata, Y., Hayatsu, N., Sugahara, Y., Shibata, K., Itoh, M., Konno, H., Okazaki, Y., Muramatsu, M. and Hayashizaki, Y. Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new Genome Res. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1859 bp mRNA linear HTC 19-JAN-2002 Mus musculus adult male pituitary gland cDNA, KIKEN full-length enriched library, clone:5330427N04.homolog to BREAST CANCER SUPPRESSOR CANDIDATE 1, full insert sequence.
                                                                                                                                                                                                                                          Carninci, P. and Hayashizaki, Y. High-efficiency full-length cD
                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                                                                                                                        Mus musculus (strain:C57BL/6J) adult male pituitary gland cDNA to mRNA, clone lib:RIKEN full-length enriched mouse cDNA library clone:5330427N04.
 Shibata, K.,
                                                                                                                                                                                                                                                                                                                   Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                               HTC; CAP trapper.
                                                                                                                                                                                                                                                                                                                                                                                                                                    AK019914.1 GI:12860311
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AK019914
                                     1042159
                                                                                                                                                                                                                                                                                                     Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      21.67%
8.04%
12
 Itoh, M.,
                                                                                                                                                                                                                           / full-length cDNA cloning
303, 19-44 (1999)
                                                                                                                                                                                                                                                                                                 Chordata;
Rodentia;
Aizawa, K., Nagaoka, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                 Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6 20
                                                                                                                                                                                                                                                                                                   Muridae; Murinae; Mus
 Sasaki, N.,
                                                                                          of new c
 Carninci, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         197
                                                                                          genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
PUBMED
REFERENCE
```

```
RS Kawai, J., Shinagawa, A., Shibata, K., Yoshino, M., Itoh, M., Ishii, Y., Arakawa, T., Hara, A., Fukunishi, Y., Konno, H., Adachi, J., Fukuda, S., Aizawa, K., Izawa, M., Nishi, K., Kiyosawa, H., Kondo, S., Yamanaka, I., Saito, T., Okazaki, Y., Gojobori, T., Bono, H., Kasukawa, T., Saito, R., Fleischmann, W., Gaasterland, T., Gissi, C., King, B., Kochiwa, H., Kadota, K., Matsuda, H., Ashburner, M., Backov, S., Casavant, T., Kuchl, P., Lewis, S., Matsuo, Y., Nikaido, I., Pesole, G., Quackenbush, J., Schriml, L.M., Staubli, F., Suzuki, R., Tomita, M., Wagner, L., Washio, T., Sakai, K., Okido, T., Furuno, M., Aono, H., Baldarelli, R., Barsh, G., Blake, J., Boffelli, D., Bojunga, N., Carninci, P., de Bonaldo, M.F., Brownstein, M.J., Bult, C., Fleicher, C., Fujita, M., Gariboldi, M., Gustincich, S., Hill, D., Hofmann, M., Hume, D.A., Kamiya, M., Lee, N. H., Lyons, P., Marchionni, L., Mashima, J., Mazzarelli, J., Mombaerts, P., Nordone, P., Ring, B., Ringyald, M., Rodriguez, I., Sakamoto, N., Sasaki, H., Sato, K., Schoonbach, C., Seya, T., Shibata, Y., Storch, K.F., Suzuki, H., Winshaw-Boris, A., Yoshida, K., Hasegawa, Y., Kawaji, H., Kohtsuki, S., and Havashirahi y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CE 5 (bases 1 to 1859)

Adachi, J., Aizawa, K., Akahira, S., Akimura, T., Aono, H., Arai, A., RS Adachi, J., Aizawa, K., Bono, H., Brownstein, M., Bult, C., Arakawa, T., Baldarelli, R., Bono, H., Furuno, M., Hanagaki, T., Carninci, P., Fukuda, S., Fukunishi, Y., Furuno, M., Hanagaki, T., Hara, A., Hayatsu, N., Hill, D., Hiramoto, K., Hiraoka, T., Hori, F., Hume, D., Imotani, K., Ishi, Y., Itoh, M., Izawa, M., Kasukawa, T., Kato, H., Kawai, J., Kojima, Y., Konno, H., Kouda, M., Koya, S., Kato, H., Kawai, J., Kojima, Y., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T., Mayazaki, A., Nishi, K., Nomura, K., Kurihara, C., Matsuyama, T., Mayazaki, A., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, Y., Okido, T., Owa, C., Quackenbush, J., Saito, H., Saito, R., Sakai, C., Sakai, K., Sano, H., Sasaki, D., Schriml, L., Shibata, K., Shibata, Y., Shinagawa, A., Shiraki, T., Sogabe, Y., Suzuki, H., Tagami, M., Tagawa, A., Takahashi, F., Tanaka, T., Tojima, Y., Toya, T., Yamamaka, I., Yawanishi, A., Yoshida, K., Yoshino, M., Muramatsu, M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
Submitted (18-AUG-2000) Yoshihide Hayashizaki, The Institute of Submitted (18-AUG-2000) Yoshihide Hayashizaki, The Institute of Physical and Chemical Research (RIKEN), Laboratory for Genome Exploration Research Group, RIKEN Gemomic Sciences Center (GSC), RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama, RIKEN Yokohama (E-mail:genome-res@gsc.riken.go.jp, URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222, Pax:81-45-503-9216)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Konno, H., Akiyama, J., Nishi, K., Kitsunai, T., Tashiro, H., Itoh, M., Sumi, N., Ishii, Y., Nakamura, S., Hazama, M., Nishine, T., Harada, A., Yamamoto, R., Matsumoto, H., Sakaguchi, S., Ikegami, T., Kashiwagi, K., Fujiwake, S., Inoue, K., Togawa, Y., Izawa, M., Ohara, B., Watahiki, M., Yoneda, Y., Ishikawa, T., Ozawa, K., Tanaka, T., Matsuura, S., Kawai, J., Okazaki, Y., Muramatsu, M., Inoue, Y., Kira, A. and Hayashizaki, Y. RIKEN integrated sequence analysis (RISA) system-384-format sequencing pipeline with 384 multicapillary sequencer Genome Res. 10 (11), 1757-1771 (2000)
                                                                                                                                                                                                                                                                                                                                                     prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. cDNA went through one round of normalization to Rot = 3.0 and subtraction to Rot = 100.0. Second strand cDNA was prepared with the primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Please visit our web site (http://genome.gsc.riken.go.jp/) further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Punctional annotation of a full-length mouse cDNA collection Nature 409 (6821), 685-690 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and Hayashizaki,Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               21085660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11076861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1121785
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Riken
```

REFERENCE

PUBMED

TITLE JOURNAL MEDLINE

COMMENT

JOURNAL

ຫຸ

end: SalI;

ω

```
밁
                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x AK019914 (1-1859)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                           1213
     1321
                                                                                                        114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         40
                                                                                                                                                                                                                                                                                                                   94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GÄÄGTGGAAGCCTCÄ-----ÄÄGGCCTGTGGAGAATTTGTGTTTCTCATGGACCGTTCÄ 1032
                                                                                                  ProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAAGTATGGACTCCCCCATGAGCACAGAGAACAATTCTCAGCTACGCATCGAGGCTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlySerMet-----MetMetLysHisValAlaValArgGluProLysIleGluLeuAla 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSer
CCCCTACAG-----CTCTTTGTCTTCACGGATGGAGAGTGAGTGACACATTTAGTGTC 1374
                                                                                                                                                                                                                                                                                                                   GlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMet 113
                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGAGGACGCAGTGAAAAGA-----GTGAAGGCTTTAAAAGCCCAACTTAGGGGGGTACT 1266
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePhe 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGATTTGGATCTTCCTATGAGAAATTCTTTCCGGAGAGTGTGAAGTACACTCAGGATACA 1212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---GlnGlyGlyLeuTyr---ThrPheAlaProTyrSerValIleIleProGlnGlySer 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAGGAAACTCTGTTGCTGTTGCTGAAGAGTTTGCCTATGGGTTGTTATTTTAATATCTAT 1152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       bulk
end:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       excision from Lambda FLC I. BamHI. Host: DH10B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /codon_start=1
/protein_id="BAB31913.1"
/brotein_id="BAB31913.1"
/db_xref="GI:12860312"
/db_xref="GI:12860312"
/db_xref="MGD:MGI:1915026"
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAVVATLNYENEEK
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAVVATLNYENEEK
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAVVATLNYENEEK
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAVVATLNYEEK
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAVVATLNEEK
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINEFVAAV
/translation="MEHHCGLITSNKETVPLKNISVTLSINeetvplknisvtls"
/translation="MEHHCGLITSNKETVPLKNISVTLS"
/translation="MEHHCGLITSNKETVPLKNISVTLS"
/translation="MEHHCGLITSNKETVPlknisvtls"
/translation="MEHHCGLITSNKETVPlknisvtls"
/translation=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            QVESTGAVCIKHILQGRSLENRVTFSLQFKANDNFTIHRLAAKSLIQTKDFGSQEAS'
1 424 c 454 g 482 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    YEKFFPESVKYTQDTMEDAVKRVKALKANLGGTEILTPLCNIYKASSIPGHPLQLFVF
TDGEVSDTFSVIREVKLNSKKHRCFSFGIGQGASTSLIKNIARVSGGTAVFITGKDRM
QTKALGSLKFALQCAVDNISLSWDLPFGLSVKKLSPEQLTIFRGQRLIIYAQLTGLMP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="data source:SPTR,
homolog to BREAST CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /tissue_type="pituitary gland'
/clone_lib="RIKEN full-length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'db_xref="FANTOM_DB:5330427N04"
'db_xref="MGD:MGT:1899542"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       strain="C57BL/6J"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.3
89.50
43.65%
27.92%
8.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  \text{\text{\subseteq} \text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tin}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\te}\text{\text{\text{\text{\text{\text{\text{\text{\text{\text{\tex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .1859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Cloning sites,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source key:000534, evidence:ISS SUPPRESSOR CANDIDATE 1
                                                                                                                                                                                                                -GCATCCTCCATTCCTGGTCAT 1320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             enriched mouse cDNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1859
55
31
88
23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ភូភូ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
```

```
RESULT 4
BG286204
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                             Alignment & Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                  Ś
                                                                         밁
                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                               Score:
                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                        US-10-034-500-2 (1-218) x BG286204 (1-831)
                                                                                                                                                                                                                 Query Match:
                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1480
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     134 ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
202
                                                                            142
                                    63
                                                                                                                 43 IleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPhe 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PheAla---AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gly---ServalLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTGGAATTGGACAAGGAGCCTCGACCAGTTTAATCAAAAATATCGCCCCGGGTATCAGGG 1479
                                AlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla 82
                                                                            CTAATCCAAATAAAAAGCAGTGATGAAAGAAACACACTCATGGCAGGATTACCTACATAT 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Robert Strausberg, |
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleosto Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. 1 (bases 1 to 831)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            602383026F1 NIH_MGC_93 Homo sapiens cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Plate: LLAM10366 row: d column: High quality sequence stop: 685.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BG286204.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BG286204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  numan.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cDNA Library Preparation: Life Technologies, Inc. cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                             246
                                                                                                                                                                                                                                                                                                                                                                             gy
                                                                                                                                                                                                                                                                                                                                                                     /clone lib="NIH MGC 93"
/tissue_type="transItional cell papilloma, cell line"
/tissue_type="transItional cell papilloma, cell line"
/lab_host="DH10B (phage-resistant)"
/note="organ: bladder; Vector: pcMV-SPORT6; Site_1: NotI;
Site_2: SalI; Cloned unidirectionally; oligo-dT primed.
Average insert size 1.7 kb. Library enriched for
full-length clones and constructed by Life Technologies.
Note: this is a NIH MGC Library."
a 174 c 192 g 219 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Homo sapiens"

ob_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'clone="IMAGE: 4500439"
                                                                                                                                                                                               88.00
38.82%
23.03%
7.86%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GI:13038883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----TTAAACAGCAAGAAACACAGATGTTTC-----TCT
-CCTCTGGGAGGAACTTCCATCTGC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         831 bp
                                                                                                                                                                                                                   Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                             Length:
Matches:
                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ph.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA
                                                                                                                                                                                                   5
5
5
5
5
5
5
5
5
5
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IMAGE: 4500439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EST 21-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ьe
```

```
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BH245004/c
LOCUS
DEFINITION
                                                        Best I
Query
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                 Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                Score:
                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
  US-10-034-500-2
                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
                                                                                                                                                                                            Мо.
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 412
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      352
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTCATTGATGCTTTTGGGGCTCTTACATCAGGAAAT 507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IleIleAspGlnIleValAlaLeuAsnSerGlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGAGCAAGATAACAGGAGGAAGTCATTTTTATGTTTCAGATGAAGCTCAGAACAATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTGATGGGGAGGATAACACTGCAAGTTCTTGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---TCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCCCAACTCGATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTGGGGCCATTGTTCATTTTATTGCTTTTGGGAAGAGCTGCTGATGAAGCAGTAATAGAG 411
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrAsnProAsnValCysPheHisValValSerPheAla-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Seq pri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Survey sequencing of Arabidopsis thaliana BAC T7013
Unpublished (2001)
Other_GSSs: AUJBA05TR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BH245004
AUJBA0STF AUJB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: cdtown@tigr.org
From Wash. U_contig 1131.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Town, C.D., Whitelaw, C.A., Pai, G., Van Feldblyum, T.V. and Fraser, C.M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Arabidopsis thaliana
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 thale cress.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 641)
                                                                                                                                                                                                                                                                                                       140
  (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             301-838-3523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sheared ends
                                                                                                                                                                                                                                                                                                    þ
                                                                                                                                                                                                                                                                                   /organism="Arabidopsis thaliana"
/strain="Columbia"
/db xref="taxon:3702"
/db xref="taxon:3702"
/clone="AUJBA05"
/clone lib="AUJB"
/clone 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ocation/Qualifiers
                                                     1.03
87.50
33.75%
18.33%
7.82%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:16922378
x BH245004
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               641 bp I
Arabidopsis thaliana
                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----TCCGAAGTACTGCTGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AspAspAlaGluGlyLysAla 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Aken, S.E., Utterback, T.V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20850,
                                                     641
44
37
57
102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSS 13-NOV-2001
AUJBA05, DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         102
                                                                                                                                                                                                                                                                                                                                                         BAC
```

(1-641)

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                             RESULT 6
BQ879640
                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                            COMMENT
                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                     119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      617 GAATTAACAGCTGAATTCAGAGAAAAAGTCAATACATTCGCCTGGTCCCCGGAAGATCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GCATTCTACACAGAACAAGGCATCTTTTGTTACCGAGTGATGCCATTCGGA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACTCAGTCGTATTAAAAAAAGAAAAACGGTAAATGGAGAGTCTGCGTAGATTTCACCGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GAGAAATTACTGAGGATCGGGTCCATC---ACCGAGGCAAAATATCTCGATTGACTCGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyr---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyLeuGlnLeuGlnAsnPro-AlaValCysGlnGluPheValAsnSerValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleTyrGlnThrAsnProAsnVal----CysPheHisValValSerPheAlaAspAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleLeuLeuThrAspGlyHisAspAsnLeuGlyMetAsnProValGluGluValLysSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaVal 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TCAACTTCTGGAAACAAGTTGTTGTCATTCATGGACGCTTTTGCT---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---SerValIleIleProGln-----GlySerTrpAsnSerCysVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTTAAGCAGAAGAGGAGAAAATTGGGTCGGGAGCGAGCAGAAGCCGTGAAAGCCGAAGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGGAGTAAGTGTTGATATCGTATCACACGAGCTCAACATCGACCCGACGTTCAAACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTAACAAAGCCTACCCAAAAGACAGTTTCCCCATTACCGCACCTCGATTGCCTCGTAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AlaGluCγsAlaVal---
CDNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Agencourt Bioscience Corporation Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                     Contact: Robert Strausberg, Ph.D.
Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. James R. Lupski
                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates; 1 (bases 1 to 1047)
                                                                                                                                                                                                                                                                                                                                     BQ879640 mRNA linear AGENCOURT_8119823 Lupski_dorsal_root_ganglion Homo clone IMAGE:6177877 5', mRNA sequence.
                                                                                                                                           Unpublished (1999)
                                                                                                                                                            NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GGTTACAACCAGATCATGATGAACCCCGTGGATCAAGAAAAAGCC
                                                                                                                                                                                                                                                                          human.
                                                                                                                                                                                                                                                                                                         BQ879640.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ĊŢĊĄĄĄĄĄĊGCTGĠĊĄĄCTTAŢĊĄĄCGCŢŢĊĠŢĊĄĄĊĄĄĄĄTCŢŢŢ
                                                                                                                                                                                                                                                                                                         GI:22271648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -LeuValAspTyrSerGlySerMetMetLysHisValAla
                                                                                                                                                                                                                  Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                Gene
                                                                                                                                                                Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                            sapiens
                                                                                                                                                                                                                                                                                                                                                                              EST 16-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                       74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        438
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16
                    þe
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                          Ş
                                                                                                밁
                                                                                                                       Ş
                                                                                                                                                            밁
                                                                                                                                                                                          Ş
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      β
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
Ś
                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x BQ879640 (1-1047)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                        172
   169
                                 505
                                                                149
                                                                                                457
                                                                                                                               129
                                                                                                                                                               397
                                                                                                                                                                                             115
                                                                                                                                                                                                                            337
                                                                                                                                                                                                                                                                                            277
                                                                                                                                                                                                                                                                                                                                                         232
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      121
                                                                                                                                                                                                                                                                                                                         84
                                                                                                                                                                                                                                                                                                                                                                                         67
                                                                                                                                                                                                                                                                                                                                                                                                                                                      52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17 LeuValAspTyrSerGlySerMetMetLysHisVal------AlaVal
                                                                                                                                                                                                                                                            96
                                                                                                                                                                                                                                                                                        TGGGTCACGAAGCAGCTCAATGAAATCAATTATGAAGACCACAAGTTGAAGTCAGGGACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGGGCCAGCAACTTCACAGGAGCCAAAAAGTGTCTAGTCAACTTA-----ATTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCCTGGACCCTTCAGGCTCCATGAACATCTACCTGGTGCTAGATGGATCAGACAGCATT
   AlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                         AAAATT---
                                                                                                                                                                                                                                                                                                                                                                                     ValIleIleProGlnGlySerTrp-AsnSerCysValAlaGluCysAlaVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                      ArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetPro
                                 TATACATTGGGGAAGGGATCCCCAAAACCCCCAGGGGAGGATTATCCGGGATGTCCTAAGG
                                                             PheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal
                                                                                                ATGGGCGGGGACCCAATTACTGTCATTGATGAAATC---
                                                                                                                            LeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCys
                                                                                                                                                             CCTGAAGGCTGGAACCGCACCCGCCATGTCATCATCCTCATGACTGATGGATTGCACAAC
                                                                                                                                                                                               ProGlnAla--
                                                                                                                                                                                                                              AACACCAAGAAGGCCCTCCAGGCAGTGTACAGCATGATGAGCTGGCCAGATGACGTCCCT
                                                                                                                                                                                                                                                          uThrPro-ValGly---AspGlyIleLysMetHisGluThrValIle-AsnGlnMetPro 114
                                                                                                                                                                                                                                                                                                                      ------AsnThrIleLysSerAspLeuGluIlePheGly-----ArgLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            http://image.llnl.gov
plate: LLAM13556 row: i column:
High quality sequence stop: 332.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               quality sequence stop: 
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5'-GACTAGTTCTAGATCGCGAGCGGCCCT(15)-3'. Size select kb for average insert length 1.7 kb. This is a prilibrary, non-amplified. Library constructed by Life Technologies and donated by J. Lupski, M.D./Ph.D. (E College of Medicine) and is available through Life Technologies."

274 c 280 g 196 t
                                                                                                                                                                                                                                                                                                                                                         -----TGGGTCAAAGTGTCTGAAGCAGACAGCAGTAATGCAGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="Vector: pCMV-SPORT6 (Life Technologies); Site_1: NotI; Site_2: SalI; cDNA made by oligo-dT priming. Directionally cloned using the following adaptors: 5'-TCGACCCACGCGTCCG-3' and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /tissue_type="dorsal root ganglia"
/dev_stage="adult, 36 yr"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="Lupski_dorsal_root_ganglion"
/sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.33
87.50
45.70%
24.19%
7.82%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   o_xref="taxon:9606"
lone="IMAGE:6177877"
                                                                                                                                                                                      -----AlaValIleLeuLeuThrAspGlyHisAsnAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1047
45
40
59
42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Size selected
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primary
                                                                168
                                                                                                                               148
                                                                                                                                                             456
                                                                                                                                                                                               128
                                                                                                                                                                                                                              396
                                                                                                                                                                                                                                                                                          336
                                                                                                                                                                                                                                                                                                                                                         276
                                                                                                                                                                                                                                                                                                                                                                                                                      231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Baylor
                                 564
                                                                                                                                                                                                                                                                                                                         96
                                                                                                                                                                                                                                                                                                                                                                                         83
                                                                                                504
```

```
RESULT 7
BJ361347
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
                                                             Ş
                                                                                              밁
                                                                                                                          Š
                                                                                                                                                         밁
                                                                                                                                                                                        Ş
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x BJ361347
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          565
 188
                               330
                                                              169
                                                                                              270
                                                                                                                           155
                                                                                                                                                           219
                                                                                                                                                                                            135
                                                                                                                                                                                                                           159
                                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                     42
                                                                                                                                                                                                                                                                                                                                                                          80 GluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGly---ArgLeuThr---
                                                                                                                                                                                                                                                                                                                      98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGCTTGGGCGCC 576
                                                                                                                      AlaAspAspAlaGluGlyLysAlaIleIleAsp------GlnIleVal 168
                                                                                                                                                           AAAGAGATTGGTAAAATTTGTAGAGAGAAT---GGTGTTTTCTTCCAC-----ACCGAT
                                                                                                                                                                                       GluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPhe 154
                                                                                                                                                                                                                                                                                                                 ---ProValGlyAsp---GlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                       AAGTGTATTATTAGATTCATGTAGA----CATTTAGAGATGGAGGGATTTAAAGTGACTTAT 98
lCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluVa 208
                                                             AlaLeuAsnSerGlySerVal-LeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaVa 188
                                                                                                                                                                                                                         CAAACATCATTGGTAACAATTATGGCAGTTAATAATGAGATTGGTGTAGTTCAACCTATT
                                                                                                                                                                                                                                                       GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGly---MetAsnProVal 134
                                                                                                                                                                                                                                                                                          TTACCAGTGGGTGAAAATGGCTTAGTAGATTTAGAGTTATTGAAGAACACAATTACACCA
                               TCGATTAGCGGTCACAAAATATACGGTCCAAAGGGTGTGGGTGCATTATTCGTCAGACGT
                                                                                            GCTGCACAAGCAGTTGGTAAGATACCAATAGATGTCAATGATATGAATATTGACCTCCTC 329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BJ361347
BJ361347.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Mycetozoa; Dictyosteliida; Dictyostelium.
1 (bases 1 to 501)
Urushihara, H., Tanaka, Y., Kohara, Y. and Shin-i, T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dictyostelium discoideum.
Dictyostelium discoideum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BJ361347

BJ361347 Dictyostelium discoideum cDNA library, CF Dictyostelium discoideum cDNA library, CF Dictyostelium discoideum cDNA clone ddc16g20 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Center For Genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Contact: Tadasu Shin-i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      81-559-81-6856
81-559-81-6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tshini@genes.nig.ac.jp
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              מ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /dev_stage="Culmination stage"
78 c ·117 g 140 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /sex="mat A"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="Dictyostelium discoideum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /strain="AX4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        db_xref="taxon:44689"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Dictyostelium
                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.798
87.00
54.23%
27.46%
7.77%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GI:19260942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Resource Information
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ka,Y., Kohara,Y. and Shin.
Dictyostelium discoideum
                                                                                                                                                                                                                                                                                                                                                                                                                    (1-501)
                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           discoideum'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                     39
38
46
19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         t the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cDNA library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       culmination
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EST 07-MAR-2002
                                                                                                                                                              269
                                                                                                                                                                                                                           218
                                                                                                                                                                                                                                                                                                                                                                                         97
```

```
RESULT 8
BJ109553
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACCESSION
VERSION
KEYWORDS
 ş
                                  밁
                                                             ક
                                                                                                   밁
                                                                                                                                 र्
                                                                                                                                                                     밁
                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x BJ109553
                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                           Score:
                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                           Х
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          390
                                    131
                                                                                                                                    53
                                                                                                                                                                                                      3
4
     98
                                                                     67
                                                                                                     71
                                                                                                                                                                     H
                                 CTTGTGTTCCTTCCAACTGCGAACAAGAACAAGTT-----TGTATAATTTACACC 131
                                                                                                 AACAAGTATGACGTTGAGATTGCTGCGGATGCATCAGTTTCAGAACTAAAAGACAAGGTT 130
                                                                                                                                  MetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSer-------
                                                                                                                                                                                       ProLyslleGluLeuAlaLysGlu---AlaIleLeuLysIleAsnAlaAlaMetProLys 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTA
                                                                                                                                                                  CCCAAGTTTGAGATGGCTACAGAGAGTGCACTCATCAAAGTTCACGTGAAATCACCGTCG 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       lval 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGACCAAGAGTACGTATCGAGC---
                                                                ---VallleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThr 85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST.
Caenorhabditis elegans.
Caenorhabditis elegans
Caenorhabditis elegans
Eukaryota; Metazoa; Nematoda; Chromadorea; Rhabditida; Rhabditoidea
Eukaryota; Metazoa; Nematoda; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BJ109553 unpublished oligo-capped cDNA library, C. elegans L1 Caenorhabditis elegans cDNA clone ykl120f07 5', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center For Genetic Resource Information
National Institute of Genetics
1111 Yata, Mishima, Shizuoka 411-8540, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A complementary view of the C.elegans genome Unpublished (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Tadasu Shin-i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and Sugano, S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kohara, Y., Shin-i, T., Thierry-Mieg, J., Thierry-Mieg, D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BJ109553.1 GI:18269582
--IleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIle 103
                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81-559-81-6856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               81-559-81-6855
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            tshini@genes.nig.ac.jp.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                    /note-"The AD-wrmcDNA library was generated with poly(A)+ RNA isolated from both hermaphrodite and male N2 worms of all larval stages, embryos, adults and dauers and the subsequent generation of cDNAs by poly(A) priming. The cDNAs were cloned into pPC86"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /clone="ykl120f07"
/clone_lib="unpublished
elegans_Ll stage"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /tissue_type="whole animal"
/dev_stage="L1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Caenorhabditis elegans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sex="hermaphrodite"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               db_xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             strain="N2"
                                                                                                                                                                                                                                                                                     1.28
86.50
37.86%
20.87%
7.73%
                                                                                                                                                                                                                                      (1-608)
                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -CAATCACAACTGGTGGTGGTCAAGAACGT 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oligo-capped
                                                                                                                                                                                                                                                                       608
43
35
67
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cDNA library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 23-JAN-2002
elegans L1 stage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Suzuki,Y
                                                                                                                                  66
```

ŗ

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                   FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BF691597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCAACGATCCGAATGTAATGCGTCAAACTATGGAGATGATTCGTAATCCAAATATGTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCAGAGTTTATGAGAACAATTATTCAATCCAACCCA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlnGluPheValAsnSer 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---GluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAAGAAATGATGCGGAAT 577
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCys 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AATCCAGATGCTATGCGTTCAGTTATGGATAATCCAAATTACACAACAACTTCTAGGAAAT 418
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCAACAGCTTCATCTGCACCAACAATGGGAGGAATGGGGATCACCTGCTGATATTTTAAAC 358
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCGTCCACTTGGTTATTAGAAATCAAGCCCGTCCAACACCAGCGCCGGCTGCTGCAACA 298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAAAAATTCTGAAGGATGAAGAAACTCTCACACAG----CACAAAATCGCTGATGGTCAC 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal------Ala
                                                                                                                                                                                                                                                                                                                                                               DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.B. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: cgapbs-r@mail.nih.gov
Tissue Procurement: ATCC/DCTD/DTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           602248190F1 NIH_MGC_62 Homo sapiens cDNA clone IMAGE:4333390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata;
Mammalia; Eutheria; Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BF691597.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BF691597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BF691597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            human.
                                                                                                                                                                                                                                                                                                                         http://image.llnl.gov
Plate: LLCM1201 row: c
                                                                                                                                                                                                                                                                                                                                                                                                                          cDNA Library Preparation: CLONETECH Labo
cDNA Library Arrayed by: The I.M.A.G.E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 876)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -AspGlyHisAsnAsnLeuGlyMetAsnProVal----
                                                                                                                                                                                                                                                                                                    quality sequence stop: 601.
            /clone="IMAGE:433390"
/clone_lib="NIH_MGC_62"
/tissue_type="melanotic melanoma, high MDR"
/lab_host="DH10B (T1 phage-resistant)"
/note="Organ: skin; Vector: pDNR-LIB (Clontech); Site_1:
/note="Organ: skin; Vector: pDNR-LIB (Clontech); Site_1:
SfiI (ggccgcctcggcc); Site_2: SfiI (ggccattatggcc);
Double-stranded cDNA was prepared from cell line RNA. 5'
and 3' adaptors were used in cloning as follows: 5'
adaptor sequence: 5'-CACGGCCATTATGGCC-3' and 3' adaptor
sequence: 5'-ATTCTAGAGGCCGACGGCCGACATG-dT(30)BN-3'
                                                                                                                                                                                                                        db_xref="taxon:9606"
                                                                                                                                                                                                                                           organism="Homo sapiens"
                                                                                                                                                                                                                                                                                   ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:11977005
                                                                                                                                                                                                                                                                                                                         column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  876 bp
or G and N =
                                                                                                                                                                                                                                                                                                                                                                                                                                             CLONETECH Laboratories, Inc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                           23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                               Consortium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
G, or T).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EST 22-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                               (LLNL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       134
                                                                                                                                                                                                                                                                                                                                                                                      þe
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                AZ683111
LOCUS
                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE
                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x BF691597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                         RESULT 10
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
                                                                                     SOURCE
                                                                                                               VERSION
                                                                                                   KEYWORDS
                                                                                                                            ACCESSION
                                                                                                                                                     DEFINITION
                                                                          ORGANISM
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       370
                                                                                                                                                                                                                                                                                                                  661
                                                                                                                                                                                                                                                                                                                                                                                           142
                                                                                                                                                                                                                                                                                                                                                                                                                     610
                                                                                                                                                                                                                                                                                                                                                                                                                                           122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       310 ATTAAAGTAACACTGGCAACTTTGAAAATGTCTGTACAGCCAACGGTTTCCCCTTGGGGGGC 369
                                                                                                                                                                                                                775
                                                                                                                                                                                                                                        201
                                                                                                                                                                                                                                                                                          181
                                                                                                                                                                                                                                                                                                                                           162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySer--------
                                                                                                                                                                                                                                                                                     lnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluG
                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyr 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGATGTGAAATCTTAAGTATATCTGGAAAGCGGTCTGCCCTGGGAGGTGGTAGCAAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---Trp-----AsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuLysIleAsnAlaAlaMetProLysMetSerTyrGln------
                                                                                                                                                                                                                                        lnIleLeu 203
                                                                                                                                                                                                                                                                                                                  GCCGTG-----AGAAATTATAGAGATATCAGCAAATTGCACAGTCATTGATGGGAGTCG
                                                                                                                                                                                                                                                                                                                                        AlaIleIleAspGln-IleValAlaLeuAsnSerGlySerValLeuValAsp-GlyLeuG
                                                                                                                                                                                                                                                                                                                                                                                        GlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CACAGAAAAAGTAACATTGTGATGAAGATGATGACGATGATGATGAAGAGGATGATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           His------GluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TAGTGGACAGCACTTAGTAGCTGTGGAGGAAGATGCAGAGTCAGAAGATGAAGAGGAGGA
                                                                                                                                                                                                                 GTGTGGTA
                                                                                                                                                                                                                                                                 ACCTTTTACAGATAAGGGAGGTTTTGAAGGAAAACCTAAACAGGGTGTTTTGTAATAGAA
                                                                                                                                                                                                                                                                                                                                                                  -----AAGATGATGATGATAATTTTGATGGTTGAGGGAGCTGAGAAAAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TTTGAAATAACACCACCAGTGGTCTTAAGGTTGAAGTGTGGTTCAGGGCCAGTGCATATT
                                                         AZ683111.1 GI:11820257
GSS.
Entamoeba histolytica.
Entamoeba histolytica
Eukaryota, Entamoebidae; E
         1 (bäses 1 to 841)
LOftus, B., Van Aken, S. and Fraser, C.
Determination of clone end sequences
HM1:INSS sheared DNA library
                                                                                                                            genomic, DNA sequence.
AZ683111
                                                                                                                                                   ENTKT69TF Entamoeba histolytica
                                                                                                                                                               AZ683111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           insert size 1.75 kb (range 0.9-4.0 kb). 15/15 colonies contained inserts by PCR. This library was enriched for full-length clones and was constructed by Clontech Laboratories (Palo Alto, CA)."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -LeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMet 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.34
86.50
39.13%
22.28%
7.73%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (1-876)
                                                             Entamoeba.
                                                                                                                                                                841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative:
                                                                                                                                                                ď
                                                                                                                                                     Sheared
                                                                                                                                                                DNA
                        from Entamoeba histolytica
                                                                                                                                                   DNA Entamoeba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  876
41
31
63
49
                                                                                                                                                                linear
                                                                                                                                                   GSS 14-DEC-2000
oa histolytica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                73
                                                                                                                                                                                                                                                                                                                                         181
                                                                                                                                                                                                                                                                                                                                                                                          161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                58
                                                                                                                                                                                                                                                                                          201
                                                                                                                                                                                                                                                                                                                714
                                                                                                                                                                                                                                                                                                                                                                  660
                                                                                                                                                                                                                                                                                                                                                                                                                    612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      609
                                   S
                                                            맑
                                                                                   Ś
                                                                                                             밁
                                                                                                                                    Ś
                                                                                                                                                                밁
                                                                                                                                                                                     Ş
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                     Best
                                                                                                                                                                                                                                                                                                                                                                                                                                           Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                    125
                                                             323
                                                                                      105
                                                                                                               263
                                                                                                                                                                221
                                                                                                                                                                                                                  164
                                                                                                                                                                                                                                                                 119
                                                                                                                                      89
                                                                                                                                                                                         69
                                                                                                                                                                                                                                        53
                                                                                                                                                                                                                                                                                          33
                                                                                                                                                                                                                                                                                                                                         14
```

```
US-10-034-500-2 (1-218) x AZ683111 (1-841)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       59 TITAATTTATTATTCCTTATTGTGCTTCAACTCATGATTTTAAAGCATTATCTGCATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TyrAsnTyrLeuValAspTyrSerGlySerMetMet----MetLysHisValAlaValArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyr------SerValIle 68
                                                                                                                                                                                                                                                                                                                                                                                                                  ---ACTTATGTTGGATTCTTTATAGAGTATCATTTTATGGTCAAGCATTTACAAATATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CACTCAAGTGTTACAGAATTGTATCAACAAATTATTGAATTAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAetProLys 52
AGCCTTTCTAACTTA---
                                               GlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsn 144
                                                                                                                                       MetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAsp 124
                                                                                                                                                                                                          ACACAGAATTTATTTGAATATGTTTATAGAAGTTCATTAAGATCAGGTGAATTTGTTGAA
                                                                                                                                                                                                                                                                                                               TTTGAACAACAAGT
                                                                                                                                                                                                                                                                                                                                                          IleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSer 88
                                                                                                                                                                                                                                                          AspLeuGluIlePheGlyArgLeu------ThrProValGlyAspGlyIleLys 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tel: 301 838 0208
Fax: 301 838 3543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Contact: Brendan J Loftus
Department of Eukaryotic Genomics
The Institute for Genomic Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Seq primer: M13-Forward Class: shotgun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The Institute for Genomic Research 9712 Medical Center Dr., Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Clones are derived
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: bjloftus@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             quality sequence start: 34 quality sequence stop: 779 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      using a method described (1993) Entamoeba historyconding and Diamond, L.S. (1993) Entamoeba historycondended (1994) The v + i method used for the library construction is described in detail in Smith, H.O. and Venter, J.C. (Making small insert libraries for whole genome shotgun sequencing projects. In Genome Sequencing: A Practical Approach, eds. M. Vaudin and B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone lib="Entamoeba histolytica Sheared DNA"
/note="Vector: pHOS1; Site_1: Bst_I; Constructed at The
/nstitute for Genomic Research (TIGR), Rockville, MD.
Genomic DNA isolated from broth cultures of E. histolytica
using a method described by Clark and Diamond (Clark,
C.G., and Diamond, L.S. (1993) Entamoeba histolytica: a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   db_xref="taxon:5759"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           strain="HM1:IMSS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                organism="Entamoeba histolytica"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.54
86.00
42.66%
22.94%
7.69%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Entamoeba histolytica HM1:IMSS sheared
                                                                                                                                                                                                                                                                                                                  -GATGCTTCAGTAAATACTAATAATAAA 262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MD 20850, USA
                                                                                                       -AGATTAATTTATTAACAAAA 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              841
50
43
79
46
       GAT
                                                                                                                                                                                                               322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         163
```

```
JOURNAL
REPERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CNS03H8Z/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
 US-10-034-500-2
                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                         Alignment Scores:
                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                BASE COUNT
                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                      source
                                                                                                                           8
0
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluValValVal 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnLeuLeuGlnAsnProAlaValCys-----GlnGluPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATAAATTTATTTCAACAAATACATTTGCAAGTGAAATATCATTTACTCTTGACGGTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATAATTATATTTTT----GTATCTTCTGTTTCTCCATGTACAGAAGAAAAAAAAGATTATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAATTAGATGAATTATCTAAAGTTTGTAAAAAAAGAACAATTATGACAACAAGAAAAAC 583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTCCCTTCTGTTCTTGAAAGAGAACCTATTATTTTTACAGAAGAAGTTATTCTT 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AspGlnIleValAlaLeuAspSerGly-----SerValLeuValAspGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIle
                                                                                                                                                                                                                                                                                                                                    This sequence is a single read and was generated as part of a large scale clone-end sequencing project of the Tetraodon nigroviridis genome. For more information, please take a look at http://www.genoscope.cns.fr/Tetraodon.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 (bases 1 to 985)
Roest-Crollius,H., Jaillon,O., Dasilva,C.,
Bouneau,L., Billault,A., Quetier,F., Saurir
Weissenbach,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Tetraodontidae; Tetraodon.

1 (bases 1 to 985)

Roest-Crollius, H., Jaillon, O., Dasilva, C., Bouneau, L., Fisher, C.,
Roest-Crollius, H., Jaillon, O., Dasilva, C., Bouneau, L., Fisher, C.,
Bernot, A., Fizames, C., Wincker, P., Brottier, P., Quetier, F.,
Saurin, W. and Weissenbach, J.
Human gene number estimate provided by genome wide analysis using
Tetraodon nigroviridis DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Euteleostei; Neoteleostei; Acanthomorpha; Acanthopterygii; Percomorpha; Tetraodontiformes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSS; genome survey sequence. Tetraodon nigroviridis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CNS03H8Z 985 bp DNA linear GSS 17-MAY-2000 Tetraodon nigroviridis genome survey sequence T7 end of clone 026E24 of library G from Tetraodon nigroviridis, genomic survey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Charaterization and repeat analysis of the compact freshwater pufferfish Tetraodon nigroviridis
                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (12-APR-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Tetraodon nigroviridis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AL243980
AL243980.1 GI:7964992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (bases 1 to 985)
(1-218)
                                                                                                                                                                                                246
                                                                                                                                                                                                ø
                                                                                                                                                                                              /clone_lib="G"
/note="Genoscope
269 c 238
                                                                                                                                                                                                                                              /organism="Tetraodon nigroviridis"
/db_xref="taxon:99883"
/clone="026E24"
                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                   3.3
86.00
36.62*
21.13*
7.69*
x CNS03H8Z
 (1-985)
                                                                                                                                                                                          g 230
                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                             Gaps:
                                                                                                                                                                                                t B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        va,C., Fizames,C.,
Saurin,W., Bernot,
                                                                                                                                                                                                           ..
                                                                                                                                                                                              C0BG026BC12LP1~end
2 others
                             985
45
33
59
76
12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bernot,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fisher, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             523
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                T7"
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                              JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 12
BG491140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                             DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  rocus
                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        107 GluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGlyHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   525 GAGGGCGAGCTGACGCCCATCCTGGTGCAGATGGTAAAGAGCGCCAACATGAACGGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspGlyLeuGlnLeuGlnAsnPro---AlaValCys 189
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTAAAACGTTGGTAACATTAAAAATAAATAGTGTTTTATGCATGTACGTGGGTT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTGGACAACGACAGCGACTCTCTGAGCAGCTGCCAACACCGCGTCAAGGCCCGGCTCCAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GACTATGCTGGTTTTCCAGGCTGCGGTTTACTACGACTGCACAGCACCTACAGACACGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GAG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PheGlyArgLeuThrProVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGGGGAGGTAGCGTCACGCTGTGTGTGTCTCCCCTGGCAGGGCTTGCTCGCCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGAAGATCTACGCGTCTGACGAAGGCAGGGTTCAGATGACGGCTGCA------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspTyrSerGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AATTCAATGAAGATCATCCAGAACCCGGTGGCCACCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----AAGGGCTTCAGCGATGAAGACTACGACAGGGTAATTTATCACTCAAGGCCCTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ------GlyAspGlyIle------LysMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Trp---AsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                           BG491140 1411 Up """ 2007 2008 602519984F1 NIH_MGC_18 Homo sapiens cDNA clone IMAGE:4638405
                                                                                                   Email: cgapbs-r@mail.nih.gov
Tissue Procurement: DCTD/DTP/Gazdar
CDNA Library Preparation: Ling Hong/Rubin Laboratory
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyre Genomics, Inc.
Clone distribution: MGC clone distribution information can
            High quality sequence start: 14 High quality sequence stop: 49
                                               Plate: LLCM1400 row: h column:
                                                                  found through the I.M.A.G.E. http://image.llnl.gov
                                                                                                                                                                                                            Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                            NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                               Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 1411)
                                                                                                                                                                                                                                                                                                                                    Homo sapiens
                                                                                                                                                                                                                                                                                                                                                        human
                                                                                                                                                                                                                                                                                                                                                                                          BG491140.1
                                                                                                                                                                                                                                                                                                                                                                                                          BG491140
                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -TGATTCTTGTGACAGCTGGCACCAACACAAAGCGCCTCG---TTGGTG
                                                                                                                                                                                                                                                                                                                                                                                          GI:13452652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              --GCCTTTGCTAAGGTTTGTGCGCTCTTTCCTCATGCTAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ATCCTGCAGACGGAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ---SerMetMetMetLysHisValAlaValArg---Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --ValCysPheHisValValSerPheAlaAspAsp
                                                                                    Consortium/LLNL
                                                                                                                                                                                                                                               Gene
                                                                                                                                                                                                                                               Collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                              EST 27-MAR-2001
                                                                                                                                                                                                                                               (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               73
                                                                                                       Б
                                                                                                                                                                                                                                                                                                                                                                                                                                               ú
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 13
AZ203552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x BG491140 (1-1411)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 score:
                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pocus
                                TITLE
                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              24 MetMetMetLysHisValAlaValArgGlu------ProLysIleGluLeuAla 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACAAGTTCGTGTACCAAAAGATTTGAACCTTAT---TACGTGGCGCCCATATAAGGAAACC 804
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSerGlySer 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProVal 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeu 59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTATGCCTGGGCATGCCGCAAACGCAAAGTGCACCAATTGCCCCGTGATT---TTGGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyAspGlyIleLysMetHisGluThrValIleAsnGln 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CATAGGTTTGGCCAACTCTCGCTT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSerCysValAla 79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAAAGGCATC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGAGCGGCTCCAATGGA---AAAGACAATCTATAGCACTTAGGTTTG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        917 bp DNA linear GSS 31-AUG-2000 SP_0081 B2_A08_SP6E Strongylocentrotus purpuratus, purple sea urchin, sperm genomic BAC library Strongylocentrotus purpuratus genomic clone Plate=81 Col=16 Row=B, DNA sequence.
                                                                       (Dases 1 to 917)

1 (Dases 1 to 917)

1 (Dases 1 to 917)

Cameron,R.A., Mahairas,G., Rast,J.P., Martinez,P., Biondi,T.R., Cameron,R.A., Mahairas,G., Roustka,A.J., Livingston,B.T., Wray Swartzell,S., Wallace,J.C., Poustka,A.J., Livingston,B.T., Wray Swartzell,S., Wallace,J.C., Poustka,A.J., Davidson,E.H. ar
                                                                                                                                                                                                                                                                Strongylocentrotus purpuratus
Eukaryota; Metazoa; Echinodermata; Eleutherozoa; Echinozoa;
Echinoidea; Euechinoidea; Echinacea; Echinoida;
                                                                                                                                                                                                                                                                                                                                Strongylocentrotus purpuratus.
                                                                                                                                                                                                                                                                                                                                                                                                               GSS
additional resources
                                                                                                                                                                                                                                                                                                                                                                                                                                           AZ203552.1 GI:8398470
                                                                                                                                                                                                                                Strongylocentrotidae; Strongylocentrotus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ||||||||::::::
|GACGGTGTTAGGAGGGGAGACACTTTGGTGGAGCAA 1029
                            sea urchin genome project: Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
/db xref="taxon:9606"
/clone="IMAGE:4638405"
/clone=lib="NIH MGC 18"
/tissue_type="large_cell carcinoma"
/tissue_type="large_cell carcinoma"
/tab host="DH108 (phage-resistant)"
/lab host="DH108 (phage-resistant)"
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: pOTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1: XhoI; Site 2:
/note="Organ: lung; Vector: poTB7; Site 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ρ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NIH_MGC L:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6.95
85.50
44.25%
30.09%
7.64%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Library."
c 376 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -GCATTGCGGAAAGTTGTATATTACAACACACAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            341
                            scan,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -TGGAATTTTTGTTGTCGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1411
34
16
40
23
                                virtual
                            map,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             948
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     993
                                                                                                   and
```

á 밁 밁 Ś á

Ś

```
JOURNAL
MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                             BM246457/c
LOCUS
           VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                          망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                      밁
                                                                                                                                                                               Ś
                                                                                                                                                                                                             뫄
                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x AZ203552 (1-917)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                               DEFINITION
                                                                                                                          RESULT 14
SOURCE
                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                     174
                                                                                                                                                                                                                                                                                                                                                                                                                102
                                                                                                                                                                                                                                                                                                                                                                                                                                            135
                                                                                                                                                      354 GGTGTTCAA 362
                                                                                                                                                                                  179
                                                                                                                                                                                                             300
                                                                                                                                                                                                                                         162
                                                                                                                                                                                                                                                                     246
                                                                                                                                                                                                                                                                                                 142
                                                                                                                                                                                                                                                                                                                                                      122 LeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaVal 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnThrIleLysSerAspLeuGluIlePheGlyArg-----LeuThrProValGlyAsp 101
                                                                                                                                                                                                                                      AlaIleIleAspGlnIleValAlaLeuAsnSerGlySerVal-----LeuValAsp 178
                                                                                                                                                                                                                                                                                            GlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLys 161
                                                                                                                                                                                                                                                                                                                                                                                                                GlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                            AATTCCTTACGTACC------ATCGGTCGTAGCGACATGACTCCT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyLeuGln 181
                                                                                                                                                                                                              ----GTATGGCAGGCAATTCAGCTCTCCCCGCCTCGAAGCCAGCAAGGATTCTTGAA
                                                                                                                                                                                                                                                                   TATCTCGCTCCAAATATCTGTGGTGGCGCACTTGTACATGCCGATGATGTAGAA-----
                                                                BM246457 713 bp mRNA linear EST 01-FEB-2002 K0738D11-3 NIA Mouse Hematopoietic Stem Cell (Lin-/c-Kit-/Sca-1-) cDNA Library (Long) Mus musculus cDNA clone K0738D11 3', mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          High quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: acameron@caltech.edu
Plate: 81 row: B column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Division of Biology 156-29
California Institute of Technology
Pasadena California 91125, USA
Tel: (626) 395-8421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Proc. Natl. Acad.
20402566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Seq primer: SP6
Class: BAC ends
          TST
                         BM246457.1
                                       BM246457
                                                      sequence.
house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 218
                                                                                                                                                                                                                                                                                                                           -----GACGTCTGGT------GACGTCTGGATGCTGTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (626) 395-8421
(626) 793-3047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ն
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DH108"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          urchin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Strongylocentrotus
/db_xref="taxon:7668"
/clone="Plate=81 Col=16 Row=B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone_lib="Strongylocentrotus purpuratus,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rry sequence stop: 917.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="Organ: sperm;
                                                                                                                                                                                                                                                                                                                                                                                    CATGAAGCCGTGTCTTCTTGGCCCCCACCAATGGGGTTC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.95
85.00
40.65%
26.02%
7.60%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 211 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         sperm genomic BAC library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sci. U.S.A. 97 (17), 9514-9518 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Davidson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vector:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  278 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hood,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BACe3.6; BAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 purpuratus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        917
32
18
41
32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Clones in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         purple sea
                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                        299
                                                                                                                                                                                                                                                                                                                                245
                                                                                                                                                                                                                                                                                                                                                          141
                                                                                                                                                                                                                                                                                                                                                                                      212
                                                                                                                                                                                                                                                                                                                                                                                                                                               173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              E-Coli
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL COMMENT
                              밁
                                                      १
 S
                                                                                      US-10-034-500-2 (1-218) x BM246457
                                                                                                                                  Query Match:
                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                          No.:
                               607
   67
ValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIle 86
                            CCTAAAATCAACTATCTTTGCTCGAAGAAAAGAGGAATATTTGTGAATGGAGTGTTTACT
                                                         ProLysMetSerTyr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Piao,Y., Kargul,G.J., Dudekula,D.B., Qian,Y., Luo,A., Ca. Aiba,K., Taub,D., Longo,D.L., Keller,J. and Ko,M.S.H. Systematic Analyses of NIA Mouse Hematopoietic Stem Cell (Lin-/c-Kit-/Sca-1-) cDNA Library (Long)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Email: cdna@lgsun.grc.nia.nih.gov
Plate: K0738 row: D column: 11
Seq primer: -21M13 Forward
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Dawood B. Dudekula
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                National Institute on Aging/National Institutes of Health 333 Cassell Drive, Suite 4000, Baltimore, MD 21224-6820, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               POLYA=Yes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Laboratory of Genetics
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 713)
                                                                                                                                                                                                                                                   214
                                                                                                                                                                                                                                                        quality sequence stop: 713
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="NIA Mouse Hematopoietic Stem Cell
(Lin-/c-Kit-/Sca-1-) cDNA Library (Long)"
/tissue_type="Hematopoietic Stem Cell (Lin-/c/)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /dev_stage="Age a
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /db_xref="niaEST:K0738D11-3"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            clone="K0738D11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     strain="C57BL/6NCr"
                                                                                                                               3.03
84.50
43.24%
20.27%
7.55%
                                                                                                                                                                                                                                                   ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chordata;
Rodentia;
                                                                                       (1-713)
                                                         -GlnGlyGlyLeuTyrThrPheAlaProTyrSer 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  approx.10 weeks old"
                                                                                                                                                                                                                                                Q
                                                                                                                             Mismatches:
Indels:
                                                                                                                                                            Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus.
                                                                                                                   713
30
34
69
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Lin-/c-Kit-/Sca-1-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Carter, M.G.,
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BQ518708/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                547
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  176 LeuValAspGlyLeuGlnLeuLeu 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   125 GlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          105 MetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAsp 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87 LysSerAspLeuGluIlePheGlyArgLeuThrProVal-----GlyAspGlyIleLys 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGATGGAAGTGGAGGTCTACGGACGACTGACCAATATTGCTTGTAATCCTGGAGATAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTATGTAAGAAGAAGAAGAGTGGAACTACATTTGCTATGAGATAGGAGATGATACAGGG 488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TTGGTTTAGGAAATGGCACTTATT 164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluGlyLysAlaIleIleAsp-----GlnIleValAlaLeuAsnSerGlySerVal 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTTCCTTTATGAAACTGCATTÄÄTTCTTGTTTTTGCGGACTTGGACATCACTGATGTTTAT 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACACACAGTAACATGCAGGTTATCAAAGCTAAGAAATTGAGAAACAACCACTCAGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----ThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTAGACTCATATGCTTTAAACTGATCCCAGACGAAGAAAAAGCACAGCTGAGATCTACA 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              801 bp mRNA linear EST 10-JUN-2002 EST626123 Generation of a set of potato cDNA clones for microarray analyses mixed potato tissues Solanum tuberosum cDNA clone STMJL66 3' end, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                               Seq primer:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     The Institute for Genomic Research 9712 Medical Center Dr., Rockville, MD 20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (2002)
Other_ESTs: EST626122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Buell, C.R., Hart, A., Baker, B., Restrepo, S., Griffiths, H., van Karamycheva, S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Solanum tuberosum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BQ518708
                                                                                                                                                                                                                                                                                                                                                                                                                           This clone is available through the Research Genetics, co
Research Genetics for further information 1-800-711-6195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Robin Buell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Generation of a set of potato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BQ518708.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: potato@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                    cdna@resgen.com
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 801)
                       ģ
                                                                                   /note="Vector: pBluescript SK(-); Site_1: EcoRI; Site_2:
XhoI; supplier: Combination of untreated and Phytophthora
infestans-treated libraries of stolons, leaves, leaflets,
                                                              axillary buds of stem explants, petioles, germinating eyes
                                                                                                                                                                                                  microarray analyses
                                                                                                                                                                                                                                                                                                                                        1. .801
                                                                                                                                                      /clone_lib="Generation of a set of potato cDNA clones
microarray analyses mixed potato tissues"
/tissue_type="mixed tissues"
/tab_host="SOLR"
                                                                                                                                                                                                                                              /db xref="taxon:4113"
/clone="grmar"/"
                                                                                                                                                                                                                                                                                                            organism="Solanum tuberosum"
                                                                                                                                                                                                                                                                                                                                                          ocation/Qualifiers
                                         tubers,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:21377577
                       or roots."
212 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cDNA clones
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  der Hoeven, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tanksley, S.,
                       200 E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        for microarray analyses
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Fry, W.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tsai,J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Smart, C.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                contact the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         428
```

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 16
BQ792380/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
Pred. No.:
                                                                                                                                                  JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                        ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x BQ518708
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                        AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LysHisValAlaValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCAAATAGGTGCCAGCTTATAATCAACATCTTGCTGCTTTCCCTGGT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrLysArgValGluSerTyrAsn---TyrLeuValAspTyrSerGlySerMetMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTCCAACTGCACCAATTGCAGGGCAGATGCCACCTGTTGCA---TCCTTGCCGATGCAA 487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTTCTTGGTGCTCCAGGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VallleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrlle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAGGAGCGATGCCCCCACAATTAATGGCAGGTGCCAGACCTCCCATTTTGCCAATTCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSer
                                                                                                                                                                                                                                                                                                                                      BQ792380

EST 8835 Veraison Grape |

vinifera cDNA clone CT000

BQ792380

BQ792380.1 GI:22007346

EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCAATGCTCTTCCAGCTCCTCCTGCACTGAACCCCCTTGTAGGAGTTCCAGGTGGAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGly---
Fax: 00-33-(V)3--V. Email: s.hamdi@bordeaux.inra.
Seq primer: T7.
                               Tel: 00-33-(0)5-57-12-25-50
Fax: 00-33-(0)5-57-12-25-48
fax: 00-33-(0)6-57-12-25-48
                                                                                                                                                                        Abbal, P., Agasse, A., Ageorges, A., Atanassova, R., Barrieu, F. Couture, C., Dedaldechamp, F., Delrot, S., Glissant, D., Grimpl Hamdi, S., Romieu, C. and Terrier, N. Generation of Expressed Sequence Tag from Grape Berry (skin or seeds) at Various Developmental Stages
                                                                                                                                                                                                                                                                       Vitis vinifera

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                  UMR 619 - Equipe Biologie de la Vigne
Universite de Bordeaux I, Institut National de
                                                                                                                                                              Or seeds) at Vario
Unpublished (2002)
                                                                                        Agronomique
71, Avenue 1
                                                                                                                                                Contact: Hamdi S.
                                                                                                                                                                                                                                                                 Vitaceae;
                                                                                                                                                                                                                                                  (bases 1 to 835)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----CAACGACCCCGCCTACCTATGATGCCACCTCCTATGCTGCCTGTT
                                                                                        Avenue Edouard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       361
                                                                                                                                                                                                                                                                                                                                                                                 835 bp mRNA linear EST 30-JUL-2002
Veraison Grape berries Lambda TriplEx2 Library Vitis
cDNA clone CT006B11 3', mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.67
84.50
38.03%
23.24%
7.55%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14
                                                                                       Bourleaux,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-801)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                  .
fr
                                                                                        ВP
                                                                                        81,
                                                                                        33883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Villenave
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TATCCAGCGGTT
                                                                                                                     la
                                                                                                                     Recherche
                                                                                                                                                                                                                       Grimplet, J.,
                                                                                          D'Ornon
                                                                                                                                                                                            (skin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        427
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                367
                                                                                                                                                                                            pulp
                                                                                          Cedex,
```

```
ACCESSION
VERSION
                                                                                                   RESULT 17
BI611208
                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x BQ792380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURES
                                                                      LOCUS
DEFINITION
                                                                                                                                                                         S
                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment
                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                             221
                                                                                                                                                                         156
                                                                                                                                                                                                      257
                                                                                                                                                                                                                                  136
                                                                                                                                                                                                                                                               317
                                                                                                                                                                                                                                                                                            127
                                                                                                                                                                                                                                                                                                                        371
                                                                                                                                                                                                                                                                                                                                                     107
                                                                                                                                                                                                                                                                                                                                                                                431
                                                                                                                                                                                                                                                                                                                                                                                                                                       476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               524
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12
                                                                                                                                                                                                                                                                                                                                                                                                            90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGGCATTTCATTACTCTTGCAAGAGTGAAGTTCCTCTTGTTGCATTCAGTGAGGATCGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTATTGACACTATTTGATCACCCTCTTGTTGAGTCACTTCACACTGTATATCGTGAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MetMetLys-----HisValAlaValArgGluPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluSerTyrAsnTyr----
                                                                                                                                                                         AspAspAlaGluGlyLysAla 162
                                                                                                                                                                                                                                  GluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAla 155
                                                                                                                                                                                                                                                                                                                                                                                GCAGACATGCTTGAAATCGTCCCCCCAGGAACCTCAAAAGGAAGTGGAGTAAGAATGCTA 372
                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AATGTTGTCAGAAGCAGTTGGAGGTCGTGCT---AATGTTGTCCAATCACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CTTTTTTAGACACTGCTGAGGGAGTGGCTACTGCTGCGGCCATAC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGGCAGAGATCATGCCTTCAGTTGAACACCTCTTGGCCATTGCTGAAATACAGAAAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ĻysIleGļuLeuAlaLysGlu--
                                                                                                                                              AATGACGAAGATGGTGTAGCT
                                                                                                                                                                                                       AAGACAAAAGCTGTG-
                                                                                                                                                                                                                                                               AATGACATTGAAATGCTTGAATTAGCTTCTTTAGGCATTGCTCTCAGTAATGGTTCGGAG
                                                                                                                                                                                                                                                                                          AsnAsnLeuGlyMet---
                                                                                                                                                                                                                                                                                                                       CTTGATCATTTGAAT-----GTGCCAGCACAGGAGGTAATGGCTATTGGTGATGGAGAA 318
                                                                                                                                                                                                                                                                                                                                                   GluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGlyHis 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity:
sequence.
BI611208
BI611208.
                                        BI611208 588 bp mRNA linear EST 07-SEP-2001 RH17375.5prime RH Drosophila melanogaster normalized Head pFlc-1 Drosophila melanogaster cDNA clone RH17375 5 similar to CG5903: FBan0005903 GO:[] located on: 3R 89B9-89B9;: 08/17/2001, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                ----LeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="Organ: Fruit without seeds; Vector: Lambda; Site_1: SfiIA; Site_2: SfiIB; Oriented library" 202 c 143 g 245 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Vitis vinifera"
/cultivar="Cabernet Sauvignon"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /clone_lib="Veraison Grape berries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:29760"
/clone="CT006B11"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  dev_stage="veraison stage"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3.93
84.50
38.50%
22.99%
7.55%
   GI:15506733
                                                                                                                                              201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-835)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----AlaileLeuLysileAsnAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuValAspTyrSerGlySerMet
||||||
                                                                                                                                                                                                         GCTAATGTGATTGGTCCCAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             835
55
9
                                                                                                                                                                                                                                                                                             ----AsnProValGlu 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TriplEx2
                                                                                                                                                                                                                                                                                                                                                                                                              106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24
                                                                                                                                                                                                                                                                                                                                                                                                                                          432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TriplEx2
                                                                                                                                                                                                          222
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
Ś
                                                                    밁
                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-034-500-2 (1-218) x BI611208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No ::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bource
                                                                                                                                                                                                                                                                                                                                                345
                                                                                                                                                                                                            390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                       450
                                                                                                                                                                                                                                                                            134
                                                                                                                                                                                                                                                                                                                                                                                                          116 GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeu-----GlyMetAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     306
          170
                                                                                                                                           150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76 SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96 LeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                 TCCAGTGCGGCGACTGCAGCCTGGTGTGCCGGCCCAGCGAGCTGCCCATCTACGGCAGC 305
                                                                    CATTACGTGGAAACCGCT---AAGGCACACCCCAGTCCACCATCGACATG-----
                                                                                                                                    HisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAla 169
                                                                                                                                                                                                                                                                                                                                      CAAGACTCTGTGCTG-----CACAAGAACCTGGAGGCCGGAGTCCGCTAT 389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTGCGCAAGACAGAACCCAAGCCAGAACGGCAT------CCACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Fax: 510 486 6798

Fax: 510 486 6798

Email: http://www.fruitfly.org/EST, est@fruitfly.org/EST, est@fruitfly.o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stapleton, M., Brokstein, P., Hong, L., Tyler, D., Berman, B., Carlson, J., Champe, M., Chavez, C., Dorsett, V., Farfan, D., Frise, E., George, R., Gonzalez, M., Guarin, H., Harris, N., Li, P., Liao, G., Misra, S., Mungall, C.J., Nunoo, J., Pacleb, J., Paragas, V., Park, S., Phouanenavong, S., Wan, K., Yu, C., Lewis, S.E., Celniker, S. and Rubin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Stapleton, M., Brokstein, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Drosophila melanogaster

Bukaryota; Metazoa; Arthropoda; Hexapoda; Insecta; Pterygota;

Neoptera; Endopterygota; Diptera; Brachycera; Muscomorpha;

Ephydroidea; Drosophilidae; Drosophila.

1 (bases 1 to 588)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              One Cyclotron Rd,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BDGP/HHMI RH Drosophila EST Project
Unpublished (2001)
Contact: Stapleton, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lawrence Berkeley National Lab
One Cyclotron Rd, Berkeley, CA 94720, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           fruit fly.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /sex="male and female"
/dev_stage="Adult"
/dev_stage="Adult"
/lab_host="DHS-alpha TonA"
/note="Organ: head; Vector: pFlc1; Site_1: XhoI; Site_2:
BamHI; Library was kindly generated by Piero Carninci at
the RIKEN. The library was normalized and excised using
Cre recombinase. Plasmid CDNA library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Drosophila melanogaster"
/db_xref="taxon:7227"
/clone="RH17375"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone_lib="RH Drosophila
>Flc-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               44.88%
30.71%
7.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.56
84.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   recombinase.
179 c 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            160 g
-----SerGlySerValLeuValAspGlyLeuGln 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-588)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         melanogaster normalized
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          est@fruitfly.berkeley.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39
118
40
30
                                                                                                                                                                                                                                                                                                                                                                                                             133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          95
                                                                    497
```

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 18
BM911554
                                S
                                                                                                  밁
                                                                                                                                                   δ
                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No.:
                                                                                                                                                                                                                       565 CAGTCGTACGCGGGTGTGGTGCAGTACAGCCACAGCCAGATGCAGGAGCACGTGAGCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182 LeuLeuGlnAsnProAlaVal
32 ArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetPro
                                                                                                                                                                                                                                                                               12 GluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAlaVal
                                                                                              CGCAGCCCAGCATCCCGAACGTGCAGGAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |||||||
CTGAACGAGCCCCAGAACTCCCCTGCACCGCAGCGGAGCCATTGTGGTGGGCGGTCTGGCT 557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGTTTÄTCTTCGCCGCCCGTG 578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA Library Preparation: Rubin Laboratory
CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Agencourt Bioscience Corporation
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
http://image.llnl.gov
Plate: LLCN1966 row: j column: 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Email: cgapbs-remail.nih.gov
Tissue Procurement: DCTD/DTP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Robert Strausberg,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1. (bases 1 to 1144)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BM911554.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BM911554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5', mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BM911554 1144 bp
AGENCOURT_6615185 NIH_MGC_41 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        quality sequence stop: 597.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
/ob_xref="taxon:9606"
/clone=lib="NIH MGC_41"
/tissue_type="amelanotic melanoma, cell line"
/totalic line
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                             x BM911554 (1-1144)
                                                                                                                                                                                                                                                                                                                                                                                                           7.7
84.00
48.42%
31.58%
7.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GI:19361933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 188
                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA linear I
sapiens cDNA clone
                                                                                              -CTCAAGGGAACCATCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gene
                                                                                                                                                                                                                                                                                                                                                                                                        1144
30
16
34
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST 12-MAR-2002
MAGE:5466355
                                       83
                                                                                                                                                         51
                                                                                                                                                                                                                       624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 þ
```

```
RESULT 19
BE372805
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                 Ś
                                                                                                       В
                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
Ś
                                  밁
                                                                                                                                                                                                                              Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMMENT
                                                                                                                                                                            US-10-034-500-2 (1-218) x BE372805
                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                   No
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           775
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     673
                                      147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88
 40
                                                                                                         93
                                                                    22
                                                                                                                                           N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          eIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSe 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGCCTGCAGTGGATGGGGGCCCTC---ACCCTTCCGGGGGGCAGCCCCTGCAACTATC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CGGGTACTATTTGACGGGCGCCTCCAGCACCCCCTAAGGGGAT 817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     rAspLeuGluIlePheGly---ArgLeuThrProValGlyAsp 101
 LysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr-------
                                    GGAAGTATGGACTCCCCCATGAGCACAGAGAACAATTCTCAGCTACGCATCGAGGCTGCC
                                                                    GlySerMet-----MetMetLysHisValAlaValArgGluProLysIleGluLeuAla 39
                                                                                                         GAAGTGGAAGCCTCA----AAGGCCTGTGGAGAATTTGTGTTTCTCATGGACCGTTCA
                                                                                                                                       GluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1 (bases 1 to 625)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov Plate: LLAM8738 row: i column: 06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Gilbert Smith,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601224321F1 NCI_CGAP_Mam1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Unpublished (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BE372805.1 GI:9318168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BE372805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BE372805
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cDNA Library Preparation: Life Technologies, Inc. CDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nouse mouse
                                                                                                                                                                                                                                                                                                                                                                      171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                      þ
                                                                                                                                                                                                                                                                                                                                                                 /note="Organ: mammary; Vector: pCMV-SPORT6; Site 1: Sa:
Site 2: NotI; Cloned unidirectionally. Primer: Oligo of
Library constructed by Life Technologies. Investigator
providing samples: Gilbert Smith, NIH"
132 c 155 g 167 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="NCI_CGAP_Mam1"
/tissue_type="tumor, biopsy sample"
/dev_stage="10 months, virgin"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:10090"
/clone="IMAGE:3582797"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               strain="FVB/N"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Mus musculus'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCGGGGAGCAGCTGTGTGGCGCCCTGTCCCCAACAACCGCTTCGCCC 774
                                                                                                                                                                                                                             3.29
83.50
43.75%
28.98%
7.46%
                                                                                                                                                                                                                10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Chordata; Craniata; Vertebrata; Euteleostomi; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                            (1-625)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        625
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mus musculus
                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                              Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    587.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cDNA clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gene
                                                                                                                                                                                                              51
26
78
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST 21-JUL-2000
IMAGE:3582797 5',
                                                                                                         146
   5
                                    206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         þe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus.
```

```
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CNS06W1A/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 20
                                                                                                                                                   COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                      JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                       TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   267
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAATCTTGACACCCCTCTGCAACATTTACAAG-----GCATCCTCCATTCCTGGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGAAACTCTGTTGCTGTTGCTGAAGAGTTTGCCTATGGGTTGTTATTTTAATATCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGATTTGGATCTTCCTATGAGAAATTCTTTCCGGAGAGTGTGAAGTACACTCAGGATACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---GlnGlyGlyLeuTyr---ThrPheAlaProTyrSerValIleIleProGlnGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTTCAATTGGACAAGGAAGCCTCGACCAGTTTAATCAAAAATATCGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTAGAGAAGTTAAG-----TTAAACAGCAAGAAACACAGATGTTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CNS06W1A
T3 end of clone AX0AJ
of Pichia farinosa, of
AL417860
             Direct Submission

Submitted (08-SEP-2000) Genoscope - Centre National de Sequencage, Submitted (08-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremieux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail: sequencage) genoscope.cns.fr)

This GSS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bervazzii, Zygosaccharomyces rouxii, Saccharomyces servazzii, Zygosaccharomyces rouxii, Saccharomyces servazzii, Zygosaccharomyces rouxii, Saccharomyces kluyveri, Kluyveromyces thermotolerans, Kluyveromyces lactis var. lactis, Kluyveromyces marxianus var. marxianus, Pichia angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, Candida tropicalis and Yarrowia lipolytica. Genomic inserts of 3 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Genomic exploration of the hemiascomycetous yeasts: yeast species for molecular evolution studies FEBS Lett. 487 (1), 3-12 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Souciet, J.L., Aigle, M., Artiguenave, F., Blandin, G., Bolotin-Fukuhara, M., Bon, E., Brottier, P., Casaregola, S., de-Montigny, J., Dujon, B., Durrens, P., Lepingle, A., Llorente, B., Malpertuy, A., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S. saurin, W., Tekaia, F., Toffano-Nioche, C., Wesolowski-Louvel, M., Wincker, P., and Weissenbach, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pichia farinosa.
Pichia farinosa
                                                                                                                                                                                                                                                                                                                                                                                                         de Montigny, J., Spehner,
Wincker, P., Artiguenave,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetales; Saccharomycetaceae; Pichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AL417860.1
GSS.
                                                                                                                                                                                                                                                          Genoscope.
                                                                                                                                                                                                                                                                                                                                                                                   Genomic exploration of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Saccharomycetales; Saccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20584711
                                                                                                                                                                                                                                                                                                                                            FEBS Lett.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11152876
kb were prepared
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 907)
                                                                                                                                                                                                                                                                              (bases 1 to 907
                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 907)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      907 bp DNA li
clone AXOAA027B09 of library AXOAA
farinosa, genomic survey sequence.
                                                                                                                                                                                                                                                                                                                                            487 (1),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:12200105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -CTCTTTGTCTTCACGGATGGAGAAGTGAGTGACACATTTAGTGTC
                                                                                                                                                                                                                                                                                                                                                                                                         Spehner, C.,
  and both extremities were
                                                                                                                                                                                                                                                                                                                                              87-90
                                                                                                                                                                                                                                                                                                                                                                                      the hemiascomycetous yeasts:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGAAGGCTTTAAAAGCCAACTTAGGGGGGTACT
                                                                                                                                                                                                                                                                                                                                                                                                         Souciet, J., and Potier, S.
                                                                                                                                                                                                                                                                                                                                                                                                                             Tekaia, F., Dujon, B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
AA from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSS 06-JUL-2001
strain CBS 7064

    A set of

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Potier, S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               488
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        326
```

```
Ś
                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                     δ
                                                                                      밁
                                                                                                                  ð
                                                                                                                                                    밁
                                                                                                                                                                             5
                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x CNS06W1A (1-907)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
DB:
RESULT 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
0
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bource
                                                                                                                                                                                                                                                                             617
                             389
                                                          210
                                                                                         449
                                                                                                                                                      497
                                                                                                                                                                                   170
                                                                                                                                                                                                                  557
                                                                                                                                                                                                                                                 152
                                                                                                                                                                                                                                                                                                            151
                                                                                                                                                                                                                                                                                                                                                                          136
                                                                                                                                                                                                                                                                                                                                                                                                          728
                                                                                                                                                                                                                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    839
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValLeu 211
                                                                                      GAACATGTAAGCAGCGTAGTCTGGAGCAATGAAAGGATCATTGACAGCAACGACGTTGAT 390
                                                                                                                    GlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluValVal 209
                                                                                                                                                    CTTGGAGGTGACTTCACCCTCGTAGGTTCTGTGAGTAGAATC----
                                                                                                                                                                                LeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCys 189
                                                                                                                                                                                                                 AGCTGGGTCCTTCTCACCGAAGACCTTGATGGCGTGGCCATCGACGATCAATTCGTCACC 498
                                                                                                                                                                                                                                                                                                                                          GCAGTGATGACAACCTTCTTGGCACCACCCTGGATGTGCTTCTCAGCACCCTCAGTCTTG 618
                                                                                                                                                                                                                                                                                                                                                                       GluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                    GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGlu 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGGTCATCAAACCCTCCTCAATACCGAACTTGTCGTTGATGACCTTGGCCAATGGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGln---GlySerTrpAsn
                             GTCCTT 384
                                                                                                                                                                                                                                             -----ValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAla 169
                                                                                                                                                                                                                                                                             GTGAAGACACCGGTGGACTCAATGAGCGTAGTCAACCTTGTTGGCGCCCCCATGGAATGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          keywords for description of this sequence and
the other extremity of this insert.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         241
                                                                                                                                                                                                                                                                                                                                                                                                        GTACTTGTCTTCGTKACACCAACAACGAACATTGGGGCGTCAGCAGAAGGA 678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      glyceraldehyde-3-phosphate dehydrogenase 1 ]
similar to Saccharomyces cerevisiae ORF YJR009c [ TDH2
glyceraldehyde-3-phosphate dehydrogenase 2 ] "
/evidence=not_experimental
a 230 c 223 g 211 t 2 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="similar to Saccharomyces cerevisiae ORF YGR192c TDH3; glyceraldehyde-3-phosphate dehydrogenase 3 ]
1 putative frameshift(s)
similar to Saccharomyces cerevisiae ORF YJL052w [ TDH1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="end : T3" <318. .>902
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /db_xref="taxon:4920"
/clone="AXOAA027B09"
/clone_lib="AXOAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          organism="Pichia farinosa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               strain="CBS 7064"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6.09
83.50
33.52%
19.78%
7.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           907
25
64
57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         for the sequence
                                                                                                                                                    -GTACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YGR192c [
                                                                                                                                                    45C
                                                                                                                                                                                                                                                                             558
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95
                                                                                                                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                            151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         о
f
```

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCUS
DEFINITION
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AI545929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  info@genomesystems.com) and Research Genetics, Huntsville, Alabama (web address: www.resgen.com) (email contact: info@resgen.com) and RessourcenZentrumPrimarDatenbank, Berlin, Germany (web address:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA Library Preparation: Matthew Clark. cDNA Library Arrayed by: Matthew Clark. DNA Sequencing by: Washington University Genome Sequencing Center Clone distribution: Genome Systems, St. Louis, Missouri (web address: www.genomesystems.com) (email contact:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Stephen L. Johnson
Washington University School of Medicine
4444 Forest Park Parkway, Box 8501, St. Louis,
Tel: 314 286 1810
Fax: 314 286 1810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Clark,M., Johnson,S.L., Lehrach,H., Lee,R., Li,F., Marra,M.,
,S., Hillier,L., Kucaba,T., Martin,J., Beck,C., Wylie,T., Und
,K., Steptoe,M., Theising,B., Allen,M., Bowers,Y., Person,B.,
,K., Steptoe,M., Pape,D., Harvey,N., Schurk,R., Ritter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes; Cyprinidae; Danio.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ALIS45929 395 bp mRNA linear EST 07-JUN Eb66b03.y1 Zebrafish Washu MRNG EST Danio rerio cDNA clone IMAGE:3716813 5' similar to SW:ITH3 MOUSE 061704 INTER-ALPHA-TRYPSIN INHIBITOR HEAVY CHAIN H3 PRECURSOR ;, mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Seq primer: T3 ET from Amersham
High quality sequence stop: 377
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WashU Zebrafish EST Project 1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Danio rerio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                www.rzpd.de)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Email: zbrafish@watson.wustl.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        and Wilson, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Kohn, S., Shin, T., Jackson, Y., Cardenas, M., McCann, R., Waterston, R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AI545929.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AI545929
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           zebrafish
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1
                     129
                                                                     þ
                   control 84
                                                                                                                                                                                                                                                                                                                                                                                                                   stage embryos"
/lab_host="XL1-blue MRF"
                                                      were sequenced additional times to assess quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                               tissue_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /clone="IMAGE:3716813"
/clone_lib="Zebrafish WashU MPIMG EST"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organism="Danio rerio"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sex="mixed"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  db xref="taxon:7955"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    to 395)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:4463302
                                                                                                                                                                                                                                                                                                                                                                                                                                                             _type="26 somite embryos, adult livers, shield
                   91
                 g
                   91
                   c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Person, B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EST 07-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ritter, E.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Underwood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eddy
```

Alignment Scores: Pred. No.:

Length:

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 22
BH132626/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x AI545929
                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Focus
                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLys 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlnGlyGlyLeuTyrThrPheAlaProTyr------SerValIleIlePro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTATTATTGATCAAAGTGGTTCTATG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AsnLeuGlyMet---AsnProVal 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GCGACTGCAGAAAATGTGGAAGAAGCAAAGACATTTGTGAAGCACATTACGAGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Contact: Brendan J Loftus
Department of Eukaryotic Genomics
The Institute for Genomic Research
9712 Medical Center Dr., Rockville, M
Tel: 301 838 0208
Fax: 301 838 3543
Email: bjloftus@tigr.org
Clones are derived from the Entamoeba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACTTCAGGTGTGACCAACCCAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValile 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---TTCGGGTTGATCACGTTCAGCAGTCACATTCAAGCCTGGAAACCAGAACTACTGAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACCAATTCAGACAAGAGGGATCCGCGTCCATCCTGATCCTGTTGACAGATGGAGACCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AsnGlnMetProProGlnAlaAla------ValIleLeuLeuThrAspGlyHisAsn 127
                                                                                                                                                                                                                                                                                                                                                                                                     Entamoeba histolytica.
Entamoeba histolytica
Eukaryota; Entamoebidae; Entamoeba
                                                                                                                                                                                                                                                                                                                                                                                                                                                  BH132626.1
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                genomic, DNA sequence.
BH132626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BH132626 886 bp
ENTNV76TF Entamoeba histolytica
                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 886)
Loftus, B., Wang, Z., Van Aken, S. and F
Determination of clone end sequences
HM1:IMSS sheared DNA library (2001)
                                                                                                                                                           Class: shotgun
                                                                                                                                                                                                                                                                                                                              Unpublished (2001)
                                                                                                                                                                       primer: M13-Forward
                                                                                                          quality sequence start: 15 quality sequence stop: 303 Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - GGAGGAGCTACAGACATAAATGGTGCTGTGCTAAATGCTGTAAACATGATC
   /clone_lib="Entamoeba histolytica Sheared DNA"
/note="Vector: pHOS1; Site_1: Bst I; Constructed
Institute for Genomic Research (TIGR), Rockville,
                                                               /organism="Entamoeba histolytica"
/strain="HM1:IMSS"
                                                 db_xref="taxon:5759"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      83.00
46.09%
28.91%
7.42%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:15091594
                                                                                               . 886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-395)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels:
                                                                                                                                                                                                      Entamoeba
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA linear GS
Sheared DNA Entamoeba
                                                                                                                                                                                                                                                                  ₹
                                                                                                                                                                                                                                                                                                                                                                         Fraser, C.
                                                                                                                                                                                                                                                                                                                                                            from
                                                                                                                                                                                                      histolytica HM1:IMSS sheared
                                                                                                                                                                                                                                                                  20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----CAAGGCAATAAA 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6
22
6
22
7
                                                                                                                                                                                                                                                                                                                                                            Entamoeba histolytica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSS 07-AUG-2001
ba histolytica
n at MD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90
                      The
```

Genomic DNA isolated from broth cultures of E. histolytica using a method described by Clark and Diamond (Clark, C.G., and Diamond, L.S. (1993) Entamoeba histolytica: a method for isolate identification. Exp. Parasitol. 77:450.). The DNA was mechanically sheared to give a tight size distribution (~2 kb). The v + i method used for the library construction is described in detail in Smith, H.O. and Venter, J.C. (Making small insert libraries for whole genome shotgun sequencing projects. In Genome sequencing: A Practical Approach, eds. M. Vaudin and B. Barell, Oxford University Press, 1999)."

BASE COUNT ORIGIN

KEYWORDS SOURCE DEFINITION ACCESSION 밁 S 맑 á 밁 S 멍 S 밁 Ś 밁 Ś 밁 Ş 밁 Ś US-10-034-500-2 (1-218) x BH132626 (1-886) Query Match: Percent Similarity: Best Local Similarity: Score: Alignment Scores: Pred. No.: 멍 S 밁 S LOCUS VERSION BI540501 RESULT ORGANISM 360 162 420 158 480 144 124 570 104 630 690 732 792 852 ATTTTGGGAATTAAGGGAGCCGTCCCCTTAAATGATTTTCAAGGGTGGATTTACTTCCAA 61 60 43 23 92 79 ysMetHisGluThrVallleAsnGlnMetProProGlnAlaAlaVallleLeuLeuThrA 124 GTCACATTTAGTCCA-----GTTTTTTTTCCAGAAAGGT---TGGAAT-----AT 691 ---ThrPheAlaProTyrSerValIleIleProGln-GlySerTrpAsnSerCysValAl 79 IleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyr-----laIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGly 179 laGlu-----GTCCAAAGGTTACCCCAATTATTGTTTATACGGTTATTTTTGGAATGTTTAAAGATTTGG spGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrA 144 CTGTAATTAGTGGACTTATTAATGTCTGTCCACCAGGTGTGGTTATTATT-----TAGGTCCAGGGTTGGAACCATTAACAGTGGATAAGGAGGGACCTTTTATTCCCGGTGGAA aGluCysAlaValAsnThrIleLysSer-AspLeuGlu------ACCGGGAGTGTTAAGTTACCATTTTTCTTATGGAAAATTAAAAGGACCAAATTTTAGGCG 733 snProAsnValCysPheHisValVal-----TTATTATAAGGCTGGTTCCATTAGGTAATGGTGGTAAATATCCAGTGCCAGAGGAAATTA 571 lePheGlyArgLeuThrProValGlyAspGly------453806 MARC 1BOV Bos taurus BI540501 BI540501 B1540501 B1540501.1 GI:15381613 EST. Bos taurus -----ATTGGGGATTATCCG-----GAAGTTCTTAAAATCCATTCTCTTG 6.81 83.00 35.68% 26.13% 7.42% 573 Indels: Gaps: Length: Matches: Conservative: Mismatches: cDNA 5', mRNA -----SerPheAlaAspAspA 158 886 52 19 50 78 sequence linear -----IleL 104 -GlуLувА 162 EST 30-AUG-2001 631 92 60 60 361 481 521

```
Best Local S:
Query Match:
DB:
  밁
                              S
                                                                  밁
                                                                                                           á
                                                                                                                                                      밁
                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x BI540501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Хо
::
                                                                               292
                                                                                                                                                          232
                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                  148
                                                                                                                                                                                                                                                                                                                                                                                             00
    352
                                        137
                                                                                                                                                                                                                                       196
                                                                                                                                                                                                                                                                         96
                                                                                                                                                                                                                                                                                                                                                       76
                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                                    ValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAsp
                                                                             CACAAGCTCCTGGAGGAGAGTGTGGAGCACAACATGATTGGCAGGCTGCCCGTCTTACAG 351
                                                                                                                                                        ACAGTCATTTCCGTGAAGGCACAGGACTACGGCTATGACCAGTCGATGATGGCCCGCTTC 291
                                                                                                                                                                                                                                     CTTGTCCTCGTAGGAGACCCT-----
                                                                                                                                                                                                                                                                   LeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                TCT-----TGTGAAAGTTGAAACTCTTACTCCGCTCATCCATCGTTGCAACAAG 195
                                                                                                                                                                                                                                                                                                                                                  SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg 95
                                                                                                                                                                                                                                                                                                                                                                                           CAAGGAGGCGTC------CCCTTCAGCTGTGTCATCGTTGATGAGGCTGGACAG
                                                                                                                                                                                                                                                                                                                                                                                                                                GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn
                                                                                                                                                                                            GlnAlaAlaValIleLeuLeuThrAsp-----
CTCACCATCCAGTACAGGATGCACCCCGGACATATGCCTCTTTCCTTCTAGTTAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FORWARD: AGGAAACAGCTATGACCAT
BACKWARD: GTTTTCCCAGTCAGACG
BACKWARD: GTTTTCCCAGTCAGACG
Plate: 117 row: N column: 11
Seq primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: smith@email.marc.usda.gov
Single pass sequencing. Bases called and alt_trimmed with phred
v0.980904.e. Vector identified by cross_match with the -minscore
and -minmatch 12 options.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence evaluation of four pooled-tissue normalized bovine libraries and construction of a gene index for cattle Genome Res. 11 (4), 626-630 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Smith, T.P. L., Grosse, W.M., Freking, B.A., Roberte, A.J., Stone, R.T., Casas, E., Wray, J.E., White, J., Cho, J., Fahrenkrug, S.C., Bennett, G.L., Heaton, M.P., Laegreid, W.W., Rohrer, G.A., Chitko-McKown, C.G. Pertea, G., Holt, I., Karamycheva, S., Liang, F., Quackenbush, J. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mammalia; Eutheria; Cel
Bovidae; Bovinae; Bos.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Contact: Smith TPL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DA, ARS, US Meat Animal Research Center
Box 166, Clay Center, NE 68933-0166, US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 573)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     402 762 4366 402 762 4390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fat,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="Vector: pCMV SPORT6; Site 1: Not1; &
Library made from pooled tissue from lymph
fat, hypothalamus, and pituitary."
135 c 133 g 166 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /organism="Bos taurus"
/db_xref="taxon:9913"
/clone_lib="MARC 1BOV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /tissue_type="pooled"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.84
82.50
36.88%
22.70%
7.37%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               u
                                                                                                               ---GlyHisAsnAsnLeuGlyMetAsnProValGluGlu 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-573)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
Indels:
                                                                                                                                                                                                                                   -----AAGCAGCTCCCTCCC 231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           573
20
46
53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Site_2: SalI;
n node, ovary,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            the -minscore
                                                                                                                                                                                              124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .
G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18
```

```
SOURCE
ORGANISM
                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
             δ
                                       밁
                                                              Ś
                                                                                          망
                                                                                                                  ঠ
                                                                                                                                            문
                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                US-10-034-500-2 (1-218) x AZ934444 (1-611)
                                                                                                                                                                                                                                                                                Score:
                                                                                                                                                                                                                                                                                                        Alignment
                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AZ934444/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                             No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       448
                                                                                          536
                                                                                                                                               596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           406
                                       482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
                                                                72
                                                                                                                     52
               78
                                                                                                                                               CGCCAAGGCAAAGTTCCCGAAGGCCGGGAAGCCCTTTTGAAACGCCCGGCCCCGATGGAC 537
                                                                                                                                                             ArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Val
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeu
GGTTATTGGGCGAGCGCGACACCTCCGAGATCAGAAAGCCGTTCTGCAAGGAGACGATC
                                                               GlySerTrpAsnSer----
                                                                                          CGTTCCGAGCGCTCGCGGGCGTC-----GCGGCGATATTCTACCTGATCTTCACCGAG
                                                                                                                  LysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ba0002K02f B. japonicum BAC genomic, DNA sequence.
AZ934444
AZ934444 GI:13776504
GSS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tel: 864 656 7288
Fax: 864 656 4293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Clemson University
100 Jordan Hall, C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Wing RA
Clemson University Genomics Institute
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tomkins,J.P., Wood,T.C., Stacey,M.G., Loh,J.T., Judd,A., J.L., Stacey,G., Sadowsky,M.J. and Wing,R.A. A marker-dense, sequence-ready map of the Bradyrhizobium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bradyrhizobium japonicum Bradyrhizobium japonicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Email: rwing@clemson.edu
Class: BAC ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genome Res. 11 (8), 1434-1440 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria; Proteobacteria; Alphaproteobacteria; Rhizobiales;
Bradyrhizobiaceae; Bradyrhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 1 to 611)
                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 quality sequence stop: 5
                                                                                                                                                                                                                                                                                                                                                ø
                                                                                                                                                                                                                                                                                                                                              /note="Vector: pIndigo536; Site_1: HindIII" 208 c 199 g 103 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                         /clone_lib="B. japonicum BAC library"
/lab_host="E. coli"
                                                                                                                                                                                                                                                                                                                                                                                                 db_xref="taxon:375"
                                                                                                                                                                                                                                                                                                                                                                                                               organism="Bradyrhizobium/strain="USDA110"
                                                                                                                                                                                                                            4.27
82.50
35.29$
21.76$
7.37$
                                                                                                                                                                                                                                                                                                                                                                                                                                            .611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Clemson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                              start: 10; stop: 561.
                                                                                                                                                                                                                                       Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SC
                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  29634, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   library Bradyrhizobium japonicum
                                                                                                                                                                                                                                                                                                                                                                                                                             japonicum"
                                                                                                                                                                                                                            611
37
23
49
61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Judd, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GSS 24-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             japonicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Goicoechea
                96
                                                                                          483
                                                                                                                                                                         51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176
                                                                  77
                                                                                                                     71
```

```
MEDLINE
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 25
CNS06H7O
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                  COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                          AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                         JOURNAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              254
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           332
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValAspGlyLeuGlnLeuLeuGlnAsnPro 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAsp 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGCATTGCTGCTGCTACATGCGCGCAGC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGlu 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGAAGGGCTGGCGCTGATCGACAAGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeu 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CGGCTGGCGCCTGCTCCCGGCTGTTCCAGAGCGAGCCGGAGATCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GACGGTTCGCTGATCTTGCTGGAGGACCAGGATCGCTCCCTGTGGAACGGCTCCATGATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGln 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Wincker, P. and Weissenbach, J.
Genomic exploration of the hemiascomycetous yeasts: 1. A set yeast species for molecular evolution studies
FEBS Lett. 487 (1), 3-12 (2000)
20584711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 (bases 1 to 1007)
Souciset, J. L., Aigle, M., Artiguenave, F., Blandin, G.,
Souciset, J. L., Aigle, M., Bon, E., Brottier, P., Casaregola, S.,
Bolotin-Fukuhara, M., Bon, E., Brottier, P., Casaregola, S.,
Ge-Montigny, J., Dujon, B., Durrens, P., Lepingle, A., Llorente, B.,
de-Montigny, J., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S.,
Malpertuy, A., Neuveglise, C., Ozier-Kalogeropoulos, O., Potier, S.,
Saurin, W., Tekaia, F., Toffano-Nioche, C., Wesolowski-Louvel, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CNS06H7O 1007 bp DNA linear GSS 17-JUN-20
T3 end of clone ASOAA010D12 of library ASOAA from strain CLIB 533
of Saccharomyces bayanus, genomic survey sequence.
                                                                 angusta, Debaryomyces hansenii var. hansenii, Pichia sorbitophila, Candida tropicalis and Yarrowia lipolytica. Genomic inserts of 3 to 5 kb were prepared and both extremities were sequenced. See keywords for description of this sequence and for the sequence of the other extremity of this insert.
                                                                                                                                                                                                                                                          Submitted (07-SEP-2000) Genoscope - Centre National de Sequencage, 2 rue Gaston Cremteux, CP 5706, 91057 EVRY cedex, FRANCE. (E-mail: seqref@genoscope.cns.fr - Web: www.genoscope.cns.fr)
This GSS is part of a random genomic sequencing program of thirteen yeast species: Saccharomyces bayanus var. uvarum, Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Aigle, M. and Durrens, P. Genomic exploration of the hemiascomycetous yeasts:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Saccharomycetales; Saccharomycetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Saccharomyces bayanus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Saccharomyces bayanus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AL398650
AL398650.1 GI:12152318
                                                                                                                                                                                        exiguus, Saccharomyces servazzii, Zygosaccharomyces rouxii,
Saccharomyces kluyveri, Kluyveromyces thermotolerans, Kluyveromyces
lactis var. lactis, Kluyveromyces marxianus var. marxianus, Pichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Fungi; Ascomycota; Saccharomycotina; Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Saccharomyces bayanus var. uvaru
FBBS Lett. 487 (1), 37-41 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                    Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 1007)
                                                                                                                                                                                                                                                                                                                                                                                                                                          (bases 1 to 1007)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E., Neuveglise, C.,
                                                                                                                                                                                                                                                                                                                                                                                             Submission
                                          Location/Qualifiers
organism="Saccharomyces bayanus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Casaregola, S., Artiguenave, F., Wincker, P.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              225
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -ACCGCGCGGTTTGCGGAC 315
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----CTG 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSS 17-JUN-2001
                                                                                                                                                                                                                      Kluyveromyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                    Ś
                                                                                                                                                                      밁
                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
```

밁 á 밁 δ 밁 δ 밁 Ş 밁 δ 밁

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x CNS06H7O (1-1007)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .
No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               misc_feature
188 ValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGlu 207
                                          870
                                                                                                                                                                 155
                                                                                                                                                                                                         750
                                                                                                                                                                                                                                                                                                                               144
                                                                                                                                                                                                                                                                                                                                                                       648
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     104 LysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuThr 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16 TyrLeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLys 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTTCAAAGAGGTAAGCAAGTTATGTTCCGTATGAATACCGGGTTGAAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                                                                                                           AspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThr 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TTACAACTGGCTACAGATGTGAATGAGTTCGGGAATAAATTTGACGTGGCCATGGAGCTA 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnGlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsn 75
                                       AGACAAAAGAACTTGTCCAAAATCCTTTCAGAAAACGGTGTACAAGTTCAGGATTCCACG
                                                                           ValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAla 187
                                                                                                                                                             AlaAspAspAlaGluGlyLysAlaIleIleAspGlnIle------
                                                                                                                                                                                                       AATGAGCTCTGCATTGAACTACGGAATCTCATTAAAGTGACAAAGAAACCTTGGTGCGAA 809
                                                                                                                                                                                                                                                                                       TGTTATTCAATCTGCGAATCTACGGCTCATATCCTGGGACTAGAACTGACGCTTTGTAAA 749
                                                                                                                                                                                                                                                                                                                               AsnProAsnValCys-----PheHisValValSerPhe-------
                                                                                                                                                                                                                                                                                                                                                                         CCAGAGGATAACAACTACGCCATG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTGAATCATTCCCTAGTACTCCTACAAAATCCTCCCAGAGAT-----CTGGTATTT 647
                                                                                                                          ATTGATAATAAATCTGGCAAATCATTTTGTGACGAGATAAGGAATCAAGTGACAAATGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     357
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="similar to Saccharomyces hypothetical protein ]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="similar to Saccharomyces
questionable ORF ]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (<104. .>388)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /evidence=not_experimental
185 c 205 g 258 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -TTCTTACTTGTCCAGTTCAGTAAAATAATGACACAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="end :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /db_xref="taxon:4931"
/clone="AS0AA010D12"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /strain="CLIB 533"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               variety="uvarum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9.78
82.50
33.88%
18.37%
7.37%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----TTGAAAAGTATATTGGAAATATTGAACCAG 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -pheGlyArgLeuThrProValGlyAspGlyIle 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                         ----AAGGAAATGTTTCAAGAT 689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1007
45
38
75
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cerevisiae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YDR203w
                                                                                                                                                                                                                                                      154
                                                                                                                                                                                                                                                                                                                                   154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     470
```

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 26
BG463740
LOCUS
                                                                                                                           밁
                                                                                                                                                                                                뭐
                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x BG463740
                                                                                                                                                                                                                                                                                                              Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORGANISM
                                                                                                                                                                                                                                                                                                                                               Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                     .
8
..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                       114
                        174
                                                           200
                                                                                                                                                                  134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         987
                                                                                                                                                                                                   86
                    SerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln----
                                                      GCCAGGGACGAGGCGAGGGCGCTCCCGTGGAGAAGCTCAGAGACCTGGGGCTCTCC 259
                                                                                                                                                              ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                                                                                                                 CCTGCGAACGCCAGGGTCGCCGTGGTCACCGGCGCAACAAAGGGATCGGGCTGGAGGTG 157
                                                                                                                                                                                                                                 ProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValValValLeuArg
                                                                                       PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly 173
                                                                                                                            TGCCGGCAGCTGGCCGGC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGGRGCTATTAAGA 1001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CTACTGAATCATATAATCTCTTCT---TTTCAAAGTGAAGCCATCACACTCCCAGAAGCC 986
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BG463740
EM1_51_D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Email: mmpratt@uga.edu
Sequences have been trimmed to exclude PolyA, vector and regions
below Phred quality 16. The threshold for highest quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Trachecphyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; FACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         High quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Contact: Cordonnier-Pratt MM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 405)
Reid,S.P., Cordonnier-Pratt,M.-M., Gingle,A. and
An EST database from Sorghum: developing embryos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clade; Panicoideae; Andropogoneae; Sorghum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sorghum bicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borghum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BG463740.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BG463740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          POLYA=No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        primer: JEN REV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    706 542 1860
706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _D07.b1_A002 Embryo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /clone_lib="Embryo 1 (EM1)"
/note="Organ: Embryos germinated for 24 hr; Vector:
pBluescript II from Lambda Zap II; Site_1: XhoI; Site_2:
EcoRI; The library was made from poly-A_RNA in the cloning
vector lambda ZAP II. Clones to be sequenced were
prepared by mass excision."
106 c 134 g 83 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Sorghum bicolor"
                                                                                                                                                                                                                                                                                                                         2.51
82.00
46.94%
23.47%
7.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:13391538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _xret="taxon:4558"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           212
                                                                                                                                                                                                                                                                        (1-405)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0 1
                                                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (EM1) Sorghum
                                                                                                                            -AACGGGGTCACCGTCTTAACA 199
   linear EST bicolor cDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pratt, L.H.
                    Glu 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               20-MAR-2001
mRNA
á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                   US-10-034-500-2 (1-218) x BE596201
                                                                                                                                               Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
 114 ProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro 133
```

ঠ 밁 ঠ S

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BE596201
LOCUS
                                                                                                        Query Match:
                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                            Pred. No.:
                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 260
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluValVal 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGTCCTTTTCCACCAACTGGACATTATCGATGCTCCGAGCATCGCTCGAATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTCCTCAAGACCCGTTTCGGGAAGCTAGATATCCTGGTAAATAATGCCGCGATT 373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Email: mmpratt@uga.edu
Sequences have been trimmed to exclude PolyA, vector and r
Sequences have been trimmed to exclude PolyA, vector and r
below Phred quality 16. The threshold for highest quality
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271,
Tel: 706 542 1860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoldeae; Andropogoneae; Sorghum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA sequence
BE596201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sorghum bicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BE596201.1
EST.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BE596201
PI1_50_G12.b1_A002 Pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     POLYA=No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Seq primer: JEN REV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fax: 706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Cordonnier-Pratt MM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          An EST database from Sorghum:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Cordonnier-Pratt, M.-M., Gingle, A., Dean, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to 524)
                                                                                                                                                                                                                                                                                                                                                                                                           119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         grow older (4 weeks or older), plants resume susceptibity to anthracnose disease. The library was made from poly-A RNA in the cloning vector lambda ZAP II. Clones to be sequenced were prepared by mass excision. WARNING: While most or all ESTs are expected to derive from the host plant, no effort was made to eliminate ESTs deriving from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cultIvar) were infected with pathogen (isolate FRM421 of Colletotrichum grammicola, which is a Borghum isolate). RNA was prepared from infected leaves harvested from 45 seedlings 48 hours after inoculation. Note: young seedlings (2 weeks old) exhibit juvenile resistant reaction, which is an incompatible interaction. As they
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /clone_lib="Pathogen induced 1 (PII)"
/note="Organ: Anthracnose-infected to the trom two-week-old sorghum plants 48 hr after inoculation;
Vector: pBluescript II from Lambda Zap II; Site_1: X
Site 2: EcoRI; Two-week-old sorghum plants (BTX 63);
Cultivary large iffected with mathographic (BTX 63);
Cultivary large iffetted with mathographic (BTX 63);

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Sorghum bicolor"
/db_xref="taxon:4558"
                                                                                                        3.85
82.00
46.94%
23.47%
7.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GI:9851274
                                                                                                                                                                                                                                                                                                                                                                                                   171 g
(1-524)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          524
                                                                                                                                                                                                                 Length:
Matches:
                                                                                                        Mismatches:
Indels:
                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4 bp m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          pathogen-induced
                                                                                                                                                                                                                                                                                                                                                                                                           104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       mRNA
d 1 (PI1)
                                                                     2 8 4 4 2 3 2 3 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
) Sorghum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sudman, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EST 18-AUG-2000
bicolor cDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       and Pratt
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 319
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              XhoI;
```

```
RESULT 28
BE599098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
  BASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
  COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         134 ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATGTCCTTTTCCACCAACTGGACATTATCGATGCTCCGAGCATCGCTCGAATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln-----Glu 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCCAGGGACGAGGGCGAGGGCGCTGCGGCCGTGGAGAAGCTCAGAGACCTGGGGCTCTCC 240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CCTGCGAACGCCAGGGTCGCCGTGGTCACCGGCGGCAACAAGGGATCGGGCTGGAGGTG 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TTCCTCAAGACCCGTTTCGGGAAGCTAGATATCCTGGTAAATAATGCCGCGATT 354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGCCGGCAGCTGGCCGGC------AACGGGGTCACCGTCGTCTTAACA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC clade; Panicoideae; Andropogoneae; Sorghum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Contact: Cordonnier-Pratt MM
Laboratory for Genomics and Bioinformatics
The University of Georgia, Department of Plant Biology
Plant Sciences Building, Rm. 2502, Athens, GA 30602-7271,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Seq primer: JEN REV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequences have been trimmed to exclude PolyA, vector and regions below Phred quality 16. The threshold for highest quality sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Cordonnier-Pratt, M.-M., Gingle, A., Dean, R., Sudman, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sorghum bicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BE599098.1 GI:9854171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BE599098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       is 20.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Email: mmpratt@uga.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     An EST database from Sorghum: pathogen-induced
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 560)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _85_D01.b1_A002 Pathogen
  127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    706 583 0210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           quality sequence stop:
                                   /clone="Corporal induced 1 (PII)"
/clone="Organ: Anthracnose-infected leaves from
/note="Organ: Anthracnose-infected leaves from
two-week-old sorghum plants 48 hr after inoculation;
Vector: pBluescript If from Lambda Zap II; Site 1: XhoI;
Site 2: EcoRI; Two-week-old sorghum plants (BTX-623
cultivar) were infected with pathogen (isolate FRM42I of
Colletotrichum graminicola, which is a sorghum isolate).
RNA was prepared from infected leaves harvested from 45
seedlings 48 hours after inoculation. Note: young
seedlings (2 weeks old) exhibit juvenile resistant
reaction, which is an incompatible interaction. As they
grow older (4 weeks or older), plants resume susceptiblity
to anthracnose disease. The library was made from poly-A
RNA in the cloning vector lambda ZAP II. Clones to be
sequenced were prepared by mass excision. WARNING: While
most or all ESTs are expected to derive from the host
plant, no effort was made to eliminate ESTs deriving from
rhe nathracan "
                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /db_xref="taxon:4558"
/clone_lib="Pathogen induced_1 (PI1)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Sorghum bicolor"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
pathogen."
142 c 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0 bp mRNA linear EST 18-AUG-2000 induced 1 (PI1) Sorghum bicolor cDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        plants
```

```
RESULT 29
BE585416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x BE599098 (1-560)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                301
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    114 ProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln-----Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GATGTCCTTTTCCACCAACTGGACATTATCGATGCTCCGAGCATCGCTCGAATTGCTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCAGGGACGAGGGGGGGCGCTGCGGCCGTGGAGAAGCTCAGAGACCTGGGGCTCTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluValVal 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGCCGGCAGCTGGCCGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGCGAACGCCAGGGTCGCCGTGGTCACCGGCGCAACAAAGGGATCGGGCTGGAGGTG 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCCTCAAGACCCGTTTCGGGAAGCTAGATATCCTGGTAAATAATGCCGCGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 (bases 1 to 605)
Qutob, D., Hraber, P.T., Sobral, B.W.S. and Gijzen, M.
Qutob, D., Hraber, P.T., Sobral, B.W.S. and Gijzen, M.
Comparative analysis of expressed sequences in Phytophthora sojae
Plant Physiol. 123 (1), 243-254 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Agriculture and Agri-Food Canada
1391 Sandford Street, London, On
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Phytophthora sojae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Phytophthora sojae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BE585416.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BES85416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8-10B-ZO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BE585416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Tel: 519 457 1470 Fax: 519 457 3997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Contact: Gijzen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eukaryota; stramenopiles; Oomycetes; Pythiales; Pythiaceae;
             /clone llb="BojaeZo"
/clone llb="BojaeZo"
/dev_stage="zoospores"
/lab_host="E. coli strain XLOLR"
/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gijzenm@em.agr.ca.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PsojaeZO Phytophthora sojae
                                                                                                                                                                                                                                                                                                                                                                                                                      /strain="race 2, strain P6497"
/db_xref="taxon:67593"
/clone lik-"r-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4.3
82.00
46.94%
23.47%
7.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GI:9836365
XhoI for directional cloning into lambda
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   đđ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ontario,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AACGGGGTCACCGTCGTCTTAACA 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Canada N5V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
23
8
44
2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EST 16-AUG-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      354
   ZAP Express
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           191
```

Score:

```
VERSION
KEYWORDS
                                                                                                                                        LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                 RESULT 30
BH538458/c
       REFERENCE
                                                                                                              ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
0
::
                                                                                                                                                                                                          533
                                                                                                                                                                                                                                     200
                                                                                                                                                                                                                                                                497
                                                                                                                                                                                                                                                                                          180
                                                                                                                                                                                                                                                                                                                   437
                                                                                                                                                                                                                                                                                                                                              160
                                                                                                                                                                                                                                                                                                                                                                         407
                                                                                                                                                                                                                                                                                                                                                                                                   140
                                                                                                                                                                                                                                                                                                                                                                                                                               350
                                                                                                                                                                                                                                                                                                                                                                                                                                                         120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44
                                                                                                                                                                                                                                GluGlnIleLeuValThrGluGluValValValLeuArgGlyValAsnPhe
                                                                                                                                                                                                          AAGCAGATTGGTGTTGTCAACCAGGAGCCATCGCTTTTTGGCCTNCACTAT
                                                                                                                                                                                                                                                                GTTGACATTGCTACG-
                                                                                                                                                                                                                                                                                       LeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGln 199
                                                                                                                                                                                                                                                                                                                   ATCGCGTCGCTTATGTCGAAGATCATCAAGCCTACGAGCGGCTCGGTGACCCTGGACGGT
                                                                                                                                                                                                                                                                                                                                                                         GTCGGCAAG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACTGTGAAGGGCCAAGTGCGCTTCACCAACGTCTCGTTCGCGTACCCGTCGCGCCCGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGGCGCTGTTCGACTTGCTGTCGCCGCCTGCAGCGGACGGCGAGGGAACGCTGGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuGluIlePheGlyArgLeuThr-----ProValGlyAspGlyIleLysMetHisGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGCTTCTCGGGCGTGTCGTCGTGCCTGAGCGAGATGAAG---AAGACCCGCATGTCATCG 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gly-----SerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAGAGCTTACGATTGGAACGCTCACGTCGTTCGCGCTGTACAGTGGCTTCATGGGCCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTCTCGATCAACTGCTCGCTCTTCTCGGTGCTGTACTTTGGAGGTTCGCTGGTGGGATCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGly------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scores:
                                                                                                                                                                                                                                                                                                                                            GlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGly
                                                                                                                                                                                                                                                                                                                                                                                                  IleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                             ATCCTTGTGCTGGAC---CGCTTGAACATGGAGATCAACCCTGGTGAGGTGGTGGCTATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSer 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----TeuTyrThrPheAlaProTyrSerValIleIleProGln
  Brassica oleracea.
Brassica oleracea
Brassica oleracea
Brassica oleracea
Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheo, Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosida II; Brassicales; Brassicaceae; Brassica.
1 (bases 1 to 699)
                                                                                                                                        BH538458
BOHRQ84TR
                                                                                                 BH538458.1
                                                                                                              BH538458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      vector. This lambda library was amplified once using E. coli host strain XLI Blue MRY. Inserts were then subcloned by mass excision using ExAssist helper phage for conversion into phagemid vector pBK-CMV in E. coli host strain XLOLR. Sequenced using T3 primer: 5' ATT AAC
                                                                                                                                         BOHR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.89
82.00
40.61%
24.37%
7.33%
                                                                                                GI:17778057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            x BE585416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               t strain XLOLR. Sec
CAC TAA AGG GA 3'.'
166 c 193 g 1
                                                                                                                                        Brassica
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             193 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1-605)
                                                                                                                                        oleracea
                                                                                                                                                   dq 669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140 t
                                                                                                                                     DNA
genomic
                                                                                                                                                                                                                                                              CTGAAGGCTTCGTGGCTTCCC
                                                                                                                                                                                                                                                                                                                                                                        AGCGGCGCTGGCAAGACCACG
                                                                                                                                        clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       605
48
32
73
44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 others
                                                                                                                                   linear GSS
                                                                                                                                                                                                          583
                                                                                                                                                                                                                                    216
                                                                                                                                      GSS 14-DEC-2001
284, DNA
                                         Tracheophyta;
                                                                                                                                                                                                                                                                                                                                             179
                                                                                                                                                                                                                                                                                                                                                                        436
                                                                                                                                                                                                                                                                                                                                                                                                   159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   172
                                                                                                                                                                                                                                                              532
                                                                                                                                                                                                                                                                                                                   496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
TITLE
JOURNAL
COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                  S
                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred.
              S
                                         밁
                                                                                             밁
                                                                                                                     S
                                                                                                                                                멼
                                                                                                                                                                          S
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     No.:
                                                                                                                                                   117
                                                                                                                                                                                                                                                              204
                                                                                                                                                                                                                                                                                                                  252
                                                                                                                                                                                                                                                                                                                                                                                                                             366
                                                                                                                          163
                                                                                                                                                                               144
                                                                                                                                                                                                                                                                                         104
                                                                                                                                                                                                                                   124
                                                                                                                                                                                                                                                                                                                                             84
                                                                                                                                                                                                                                                                                                                                                                                                  64
LeuValThrGluGluVal
                                                                                                                                                                                                                                                              AAACTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scores:
                                                                                                                                                                              AsnProAsnVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Seq primer: TR
Class: sheared ends
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Email: cdtown@tigr.org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tel: 301-838-3523
Fax: 301-838-0208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Contact: Chris Town
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6.21
82.00
33.87%
21.51%
7.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 699
               208
```

S

맑 δ 밁 8 밁 Ś

밁 S 밁

밁 \$ 8

S 밁 S 밁 8 В

S

```
US-10-034-500-2 (1-218) x BH538458 (1-699)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       51 ProLysMetSerTyrGlnGlyGlyLeu-------TyrThrPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           31 ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIle
                                                                                LeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIle
                                                                                                                                                                                                                                                                    IleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAAGACTCTTGAAGGTCGGATCAATAACAGAAGTTAGGTATCCAGACTGGCTCGCTAAC
                                                                                                                                                                                                                                                                                                                                                              GATCGGGGAACATATTGCTACAAAGTAATGCCTTTCGGT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCGGGCACAATCAGATCATGATGAATCCCGACGATCGTGAGAAAACTGCGTTCATCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGGTCGTGGTCAAAAAGAAAAATGGCAAATGGCGAGTATGTCCAAAGGATTGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProTyrSerVallleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCAAACAAAAAAGGCGGAAGCTAGGACCGGAGCGTGCCACCGCGGTAAATAAGGAAGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Town,C.D., Van Aken,S., Utterback,T. and Fraser,C.M. Whole genome shotgun sequencing of Brassica oleracea Unpublished (2011)
Other_GSSs: BOHRQ84TF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Medical Center Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /clone lib="BOHR"
/note="Vector: pHOS1; Site_1
genomic DNA inserted into phase of the phase of t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /strain="TO1000DH3"
/db_xref="taxon:3712"
/clone="BOHRQ84"
-GCCACTTACCAGCGACTTGTCAATCGAATTTTC----TCCGAACAGATC
                                                                                                                                                                               -----CTCAAGAATGCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -TTCCCACTCCCGCACATCGACCGACTGGTCGAAGCAACAGCAGGGAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                organism="Brassica"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysPheHisValValSerPheAlaAspAspAlaGluGlyLysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .org
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              haploid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rockville,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oleracea"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              provided
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Site_1: BstXI; 2
into pHOS1 using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -TTATCATTTATGGATGCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    699
40
23
71
52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20850,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Tom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Osborn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BetXI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ድ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sheared
| linkers"
                                                                                         202
                                                                                                                                                                                                                                                                        182
                                                                                                                                                                                                                                                                                                                                                                                                                                                            162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                50
                                                                                                                                                                               64
                                                                                                                                                                                                                                                                                                                                                              79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               253
```

밁

```
JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BF238073/c
LOCUS
                                        밁
                                                                         Ş
                                                                                                                      밁
                                                                                                                                                         Ś
                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                              Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOURCE
ORGANISM
á
                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 31
                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          source
  113
                                                                                                                                                                                                      554
                                          449
                                                                                                                                                                82
                                                                                99
    MetProPro-
                                                                                                                                                                                                      TACCAAGTTGTCATGGATGACCTTGGCCAGGGGTCT---AACAGTTGTGTTGCA-----
                                                                                                                                                                                                                               TyrSerValIle------IleProGlnGlySerTrpAsnSerCysValAlaGluCys 81
                                                                              ValGlyAspGlyIleLysMetHisGluThrValIleAsnGln----
                                                                                                                      -----GGAGACATTGCTGATGATCTTGAGCTGTTGTCATACTTCTCATGGTTCACACCC 450
                                                                                                                                                            AlaValAsnThrIleLysSerAspLeuGluIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Email: cgapbs-r@mail.nih.gov
Tissue Procurement: Louis M. Staudt, M.D., Ph.D.
cDNA Library Preparation: Ling Hong/Rubin Laboratory
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Incyte Genomics, Inc.
Clone distribution: MGC clone distribution information can
found through the I.M.A.G.E. Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   601811788F1 NIH_MGC_48 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     http://image.llnl.gov
Plate: LLCM895 row: o
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NIH-MGC http://mgc.nci.nih.gov/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BF238073.1 GI:11151992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BF238073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mammalia; Eutheria;
1 (bases 1 to 987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    e: LLCM895 row: o column: 22 quality sequence stop: 638. Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone_libe"NNH MGC 48"
/clone_libe"NNH MGC 48"
/clone_libe"NNH MGC 48"
/lab host="DHNGE (phage-resistant)"
/lab host="DHNGE (phage-resistant)"
/lab host="DHNGE (phage-resistant)"
/note="Organ: B-cells; Vector: pOTB7; Site_1: XhoI;
Site_2: ECORI; CDNA made by oligo-dT priming.
Directionally cloned into EcORI/XhoI sites using the following 5' adaptor: GGCAGGAG(G). Size-selected >500bp for average insert size 1.8kb. Library constructed by Ling Hong in the laboratory of Gerald M. Rubin (University of California, Berkeley) using ZAP-cDNA synthesis kit (Stratagene) and Superscript II RT (Life Technologies).
Note: this is a NIH MGC Library."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /organism="Homo sapiens"
/db_xref="taxon:9606"
                                        -ACGAACATGGGGGCATCAGCAGAGGGGCAGAGATGATGACCCTTTTGG 399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                                                                                                                                                                                                                                    x BF238073
                                                                                                                                                                                                                                                                                                                            11
82.00
40.74%
25.93%
7.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Primates; Catarrhini; Hominidae;
-GlnAlaAlaValIleLeuLeuThrAspGlyHisAsn 127
                                                                                                                                                                                                                                                                                      (1-987)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        987 bp
                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                   Indels:
                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                       Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mRNA linear EST 14-NOV-2
s cDNA clone IMAGE:4054893 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gene
                                                                                                                                                            PheGlyArgLeuThrPro 98
                                                                                                                                                                                                                                                                                                                            987
42
24
52
44
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST 14-NOV-2000
                                                                                                                                                                                                      504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  рe
```

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 32
AK008659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Valval 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGlu 207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAla 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGTTCTCAGC------CTTGACGGTGCCATGGAATTTGCCATGGGTGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTTTTGGAGGGATCTCGCTCCTGGAAGATGGTGATGGGATTTCCATTGATGACAAGCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsnVal 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTCCCCCTGCAAATGAGCCCCAGCCTTCTCCAGTGGTGGAAGACG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCATATTGGAACATGTAAACCATGTA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIle
                                                                                                                                                                                                                                                                     Shibata, K., Itoh, M., Aizawa, K., Nagaoka, S., Sasaki, N., Carninci, P., Konno, H., Akiyama, J., Nishi, K., Kitsunai, T., Tashiro, H., Itoh, M., Suni, N., Ishii, Y., Nakamura, S., Hazama, M., Nishine, T., Harada, A., Yamamoto, R., Matsunoto, H., Sakaguchi, S., Ikegami, T., Kashiwagi, K., Fujiwake, S., Inoue, K., Togawa, Y., Izawa, M., Ohara, E., Watahiki, M., Yoneda, Y., Ishikawa, T., Ozawa, K., Tanaka, T., Matsuura, S., Kawai, J., Okazaki, Y., Muramatsu, M., Inoue, Y., Kira, A. and Hayashizaki, Y. RIKEN integrated sequence analysis (RISA) system-384-format sequencing pipeline with 384 multicapillary sequencer Genome Res. 10 (11), 1757-1771 (2000)
Kawai,J., Shinagawa,A., Shibata,K., Yoshino,M., Itoh,M., Ishii,Y., Arakawa,T., Hara,A., Fukunishi,Y., Konno,H., Adachi,J., Fukuda,S., Aizawa,K., Izawa,M., Nishi,K., Kiyosawa,H., Kondo,S., Yamanaka,I., Saito,T., Okazaki,Y., Gojobori,T., Bono,H., Kasukawa,T., Saito,R., Kadota,K., Matsuda,H., Ashburner,M., Batalov,S., Casavant,T., Fleischmann,W., Gaasterland,T., Gissi,C., King,B., Kochiwa,H., Kushl,P., Lewis,S., Matsuo,Y., Nikaido,I., Pesole,G., Kushl,P., Schriml,L.M., Staubli,F., Suzuki,R., Tomita,M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Carninci,P., Shibata,Y., Hayatsu,N., Sugahara,Y., Shibata,K., Itoh,M., Konno,H., Okazaki,Y., Muzamatsu,M. and Hayashizaki,Y. Normalization and subtraction of cap-trapper-selected cDNAs to prepare full-length cDNA libraries for rapid discovery of new genome Res. 10 (10), 1617-1630 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Carninci,P. and Hayashizaki,Y.
High-efficiency full-length cDNA cloning
Meth. Enzymol. 303, 19-44 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AK008659 2933 bp mRNA linear HTC 19-JJ
Mus musculus adult male stomach cDNA, RIKEN full-length enriq
library, clone:2210006G11:chloride channel calcium activated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mus musculus (strain:C57BL/6J) adult clone_lib:RIKEN full-length enriched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            HTC; CAP trapper.
Mus musculus (str
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone:2210006G11.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AK008659.2 GI:15919900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                99279253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           full insert sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11042159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20499374
                                                                                                                                                                                                                                                          20530913
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .0349636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - CCAGTGGACTCCACGACGTACTCAGCGCCAGCATCGCCCCACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Craniata; Vertebrata; Euteleostomi; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mRNA linear HTC 19-JAN-2002 cDNA, RIKEN full-length enriched
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       male stomach cDNA to mRNA, mouse cDNA library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTGAGGTCAATGAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 genes
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                      gene
                                                                                                                                    gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (S. Adachi, J., Aizawa, K., Akahira, S., Akimura, T., Aono, H., Arai, A., Arakawa, T., Baldarelli, R., Bono, H., Brownstein, M., Bult, C., Carminci, P., Fukuda, S., Fukunishi, Y., Furuno, M., Hanagaki, T., Hara, A., Hayateu, N., Hill, D., Hiramoto, K., Hiraoka, T., Hori, F., Hume, D., Imotani, K., Ishii, Y., Itoh, M., Izawa, M., Kasukawa, T., Kato, H., Kawai, J., Kojima, Y., Konno, H., Kouda, M., Koya, S., Kurihara, C., Matsuyama, T., Miyazaki, A., Nishi, K., Nomura, K., Numazaki, R., Ohno, M., Okazaki, Y., Okido, T., Owa, C., Quackenbush, J., Salto, H., Saito, R., Sakai, C., Sakai, K., Sano, H., Sasaki, D., Schriml, L., Shibata, X., Shibata, Y., Shinagawa, A., Shiraki, T., Sogabe, Y., Suzuki, H., Tagami, M., Tagawa, A., Takahashi, F., Tanaka, T., Tejima, Y., Toya, T., Yamamura, T., Yamanaka, I., Yasaunishi, A., Yoshida, K., Yoshino, M., Muramatsu, M. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA library was prepared and sequenced in Mouse Genome Encyclopedia Project of Genome Exploration Research Group in Riker Genomic Sciences Center and Genome Science Laboratory in RIKEN. Division of Experimental Animal Research in Riken contributed to prepare mouse tissues. First strand cDNA was primed with a primer [5, GAGAGAGAGGATCCAAGAGGCTCTTTTTTTTTTTTVN 3,], cDNA was
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (10-JUL-2000) Yoshihide Hayashizaki, The Institute of Physical and Chemical Research (RIKEN), Laboratory for Genome Exploration Research Group, RIKEN Genomic Sciences Center (GSC), RIKEN Yokohama Institute; 1-7-22 Suehiro-cho, Tsurumi-ku, Yokohama Kanagawa 230-0045, Japan (E-mail:genome-res@gsc.riken.go.jp, URL:http://genome.gsc.riken.go.jp/, Tel:81-45-503-9222, Pax:81-45-503-9216)
On Oct 4, 2001 this sequence version replaced gi:12842987.
Please visit our web site (http://genome.gsc.riken.go.jp/) for further desiring
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wagner, L., Washio, T., Sakai, K., Okido, T., Furuno, M., Aono, H., Baldarelli, R., Barsh, G., Blake, J., Boffelli, D., Bojunga, N., Carninci, P., de Bonaldo, M.F., Brownstein, M.J., Bult, C., Fletcher, C., Fujita, M., Gariboldi, M., Gustincich, S., Hill, D., Hofmann, M., Hume, D.A., Kamiya, M., Lee, N.H., Lyons, P., Marchionni, L., Mashima, J., Mazzarelli, J., Mombaerts, P., Ring, B., Ringwald, M., Rodriguez, I., Sakamoto, N., Sasaki, H., Sato, K., Schonbach, C., Seya, T., Shibata, Y., Storch, K.F., Suzuki, H., Toyo-oka, K., Wang, K.H., Weitz, C., Whittaker, C., Wilming, L., Wynshaw-Boris, A., Yoshida, K., Hasegawa, Y., Kawaji, H., Kohtsuki, S., and Turashizaki.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           prepared by using trehalose thermo-activated reverse transcriptase and subsequently enriched for full-length by cap-trapper. cDNA went through one round of normalization to Rot = 5.0 and subtraction Rot = 25.0. Second strand cDNA was prepared with the primer adapter of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           with XhoI and SstI. Cloning sites, 5' end: XhoI; 3' end: SstI.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bequence 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            further details.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Yasunishi,A.,
Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nature 409 (6821), 685-690 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Functional annotation of a full-length mouse cDNA collection
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          and Hayashizaki,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 2933)
                                                                                                                                /gene="Clca3"
29. .2770
                                                                                                                                                                                                                                                                                                                                                                                                                                     /organism="Mus musculus"
/strain="C5H/G0"
/strain="C5H/G0"
/db_xref="FANTOM_DB:2210006G11"
/db_xref="MGD:MGT:189583"
/db_xref="taxon:10090"
                                                                                                                                                                                                                                       /tissue_type="stomach"
/clone_lib="RIKEN full
/dev_stage≈"adult"
/note="chloride channel calcium activated 3
lata source:MGD, source key:MGI:1346342, evidence:ISS
                                                                                  gene="Clca3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                       sex="male"
                                                                                                                                                                                                                                                                                                                                                                                                        clone="2210006G11"
                                                                                                                                                                                                                                                                                    full-length enriched mouse cDNA library"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yokohama,
```

COMMENT

```
Ś
                                                          밁
                                                                                                         S
                                                                                                                                                             밁
                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2 (1-218) x AK008659 (1-2933)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1040
                                                          1352 GCCGCTAAAGAGCTTGAGCAGCTGTCCAAAATGACAGGAGGCCTGCAGACATACTCTTCG 1411
                                                                                                                                                                                                                                                                                                                                                                                                                               100 GlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGln-----Ala 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             983 --- CTGAACGATGATCGTCTTAACCGAATGAATCAGGCAAGCCGGCTTTTCCTGCTGCAG 1039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    959 GTTCTTGATAAGTCCGGGAGCATG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                       GAPATTGTGCTGACCGATGGGGAGGACAACACCATTAGCAGCTGCTTTGACCTGGTG
  AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerVal 175
                                                                                                                                                                                                                  LysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPhe-----
                                                                                                                                                                                                                                                                                                                      AlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluVal 137
                                                                                                                                                                                                                                                                                                                                                                             TGCTCTGGCCTTCGGACAGCATTTACAGTGATAAAGAAGAAGTATCCAACTGATGGATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGGTGACCTTTGACAGTGCTGCCTATGTACAAAGCGAACTCAAACAGTTAAACAGTGGT 1126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGlu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                             AAG-----CAGAGCGGGGCCATCATCCATACAGTGGCCCTGGGACCGGCT 1351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCTGACAGAGATCTGCTGATCAAGCACTTACCCACAGTATCTGCAGGAGGGACATCTATA 1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----IlePheGlyArgLeuThrProVal 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KMTGGLQTYSSDQVQNNGLVDAFAALSSGNAAIAQHSIQLESRGVNLQNNQMMNGSVI
VDSSVCKDTLFLLTMTTHPTLF I MDESGVEQNGFILDTTTKYALQVDGTAKVGFWK
YSIQASQTLTLTUTSTRAABATLP I TIVTSGVEYQNGFILDTTTKYALQVDGTAKVGFWK
YSIQASQTLTLTWTSRAABATLP I TIVTSGVATOR
ASVTALLESVNGKTVTLELLDNGAGADATKNDGVYSR F PTAFDANGR Y SVKIWALGGV
TSDRQBAAPFKNRAMYI DGWI EDGEVRNN P PR PETS YVQDKQLCFSRTGSGGSFVATN
VPAAAPI PDLF PPCQITDLKASI QGQNLVNLTWTAPGDDYDHGRASNYI I RMSTSIVD
LRDHFNTSLQVNTTGLI PKEASSEE I FEFELGGNTFGNGTDI FIAIQAVDKSNLKSEI
SNIARVSVFI PAQEPPI PEDSTPPCPDISINSTI PGIHVLKIMWKWLGEMQVTLGLH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EDBALI QHI KDMUTQAS PYLEBATGKREY FKNVALI LI PESWKAKEBYTR PKLETFKNA
DVLVSTTSPLGNDE PYTEHI GACGEKGI RI HLTD PELAGKKLTQYGPQDRTFVHEWAH
FRWGVFNE YNNDEKFYLKGKEPQAVRCSAA I TGKNQVRRCQGGSCI TNGKCVLTDRVTG
LYKDNCVFV PD PPHQNEKASI MFNQNI NS VVEE FCTEKHHNGBA PRODNQRCNLASTWEV
LQESEDF KQTTPMTAQPPAPTFS LLQI GQRI V CLVLDKSGSMLNDDRLNRMNQASRLF
LLQTVEQGSWYGNYTPDSAATVQSELKQLNSGADRDLLI KHLFTVSAGGTS I CSGLTF
LLQTVEQGSWYGNYTPDSAATVQSELKQLNSGADRDLLI KHLFTVSAGGTS I CSGLTF
AFTYLKKKY PTDGSBI VLLTDGEDNTI SSCFDLVKQSGAI I HTVALGPAAKELEQLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /codon_start=1
/proteIn_id="BAB25815.2"
/proteIn_id="BAB25815.2"
/db_xref="MGI:15919901"
/db_xref="MGD:MGI:1346342"
/translation="MESIKSPYFLIILHLIEGYLSESLIQLNNNGYEGIVIAIDHDVP/
/translation="MESIKSPYFLIILHLIEGYLSESLIQLNNNGYEGIVIAIDHDVP/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     66.7
82.00
34.40%
19.72%
7.33%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        697 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----ACTGTGGAGCAGGGATCCTGGGTCGGG 1066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2933
43
32
65
78
                                                                                                                                                                                                                                                                                                                                                                             1246
                                                                                                              155
                                                                                                                                                                                                                  154
                                                                                                                                                                                                                                                                       1306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      982
```

밁

1412 GATCAGGTTCAGAACAATGGTCTTGTTGATGCTTTCGCAGCACTCTCCTCAGGAAATGCG 1471

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 33
BE757248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                δ
                                                                          밁
                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
밁
                                                                                                                                                       US-10-034-500-2 (1-218) x BE757248 (1-531)
                                                                                                                                                                                                               Query Match:
                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                            Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                    ORIGIN
                                                                                                                                                                                                                                                                                                                                                                        BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDITINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    176
                                    36
                                                                            58
                                                                                                                16
  97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGATCGCTCAGCACTCCATCCAGCTGGAGAGCAGGGGAGTTAATCTCCAGAAT 1525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuVal-----AspGlyLeuGlnLeu---------LeuGlnAsn
                                                                                                                                                                                                                                                                                                              Scores:
                                    IleGluLeuAlaLysGluAlaIleLeuLysIle-------AsnAlaAla 49
                                                                                                    TyrLeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLys 35
ATAAAGCAGACCCGGGAAGCCCTCATCAAGATCCTGGATGACCTCAGTCCCCATGACCAG 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BACKWARD: GTTTTCCCAGTCACGACG
Plate: 63 row: B column: 1
Seq primer: ATTTAGGTGACACTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Contact: Smith TPL
USDA, ARS, US Meat Animal Research Center
PO Box 166, Clay Center, NE 68933-0166, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence evaluation of four pooled-tissue normalized bovine cDNA libraries and construction of a gene index for cattle Genome Res. 11 (4), 626-630 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1 (bases 1 to 531)
Smith, T.P. L., Grosse, W.M., Freking, B.A., Roberts, A.J., Stone, R.T., Casas, E., Wray, J.E., White, J., Cho, J., Fahrenkrug, S.C., Bennett Gasas, E., Heaton, M.P., Laegreid, W.W., Rohrer, G.A., Chitko-McKown, C.G., Pertea, G., Holt, I., Karamycheva, S., Liang, F., Quackenbush, J. and Keele, J.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Email: smith@email.marc.usda.gov
Single pass sequencing. Bases called and alt_trimmed with phred
v0.980904.e. Vector identified by cross_match with the -minscore 18
and -minmatch 12 options.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             211641 MARC
BE757248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FORWARD: AGGAAACAGCTATGACCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Tel: 402 762 4366
Fax: 402 762 4390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21180013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bovidae; Bovinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BE757248.1 GI:10171240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PCR PRimers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  te: 63 row: B column: 16 primer: ATTTAGGTGACACTATAG.
                                                                                                                                                                                                                                                                                                                                                                        139
                                                                                                                                                                                                                                                                                                                                                                                     /note-"Vector: pCMV SPORT6; Site 1: NotI; Site 2: SalI; Library made from pooled tissue from testis, thymus, semitendonosus muscle, longissimus muscle, pancreas, adrenal, and endometrium."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /db_xref="taxon:9913"
/clone_lib="MARC 2BOV"
/tissue_type="pooled"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Bos taurus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
                                                                                                                                                                                                               4.57
81.50
44.59%
24.32%
7.28%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2BOV Bos taurus
                                                                                                                                                                                                                                                                                                                                                                      a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bos.
                                                                                                                                                                                                                                                                                                                                                                    137 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   531 bp
                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               cDNA 5', mRNA sequence
                                                                                                                                                                                                                                                                                                                                                                        105 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mRNA
                                                                                                                                                                                             531
36
30
37
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25-APR-2001
                                                                            96
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BF304340/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCESSION
                                                                                                                                                       ORIGIN
                                  Score:
                                                               Pred. No.:
                                                                                        Alignment
                                                                                                                                                                                       BASE COUNT
   Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VallleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCATCCTCACTGATGGCGACCCCACTGTAGGG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTGCAGCTGCTGGAGAAAGCCAACCAGGAGGAGCTGCTGCCTGAAGGGAGCATCACCCTC 366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluThrValIle-----AsnGlnMetProProGlnAlaAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSer---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerIleTyrGlnThrAsnProAsn 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCAGCCTCGACTGAGAAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTCGACCTCATCAGCTTCAGTTCGGAAGCAACCACGTGGAAACCT-----TTGCTAGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cDNA Library Preparation: Ling Hong/Rubin Laboratory cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL) DNA Sequencing by: Incyte Genomics, Inc. Clone distribution: MGC clone distribution information can found through the I.M.A.G.E. Consortium/LLNL at: image.llnl. plate: LLCM1002 row: b column: 12 High quality sequence stop: 685.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unpublished (1999)
Contact: Robert Strausberg, Ph.D.
Email: cgapbe-remail.nih.gov
Tissue Procurement: ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1 (bases 1 to 867)
NIH-MGC http://mgc.nci.nih.gov/.
National Institutes of Health, Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BF304340
601887241F1 NIH_MGC_17 Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BF304340.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BF304340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----GAGACCAACCCTTCG
                                                                                                                                                                                       186
                                                                                                                                                                                 /clone_Ib="NAMGE:4121003"
/clone_lib="NIH_MGC_17"
/clone_lib="NIH_MGC_17"
/clone_lib="NIH_MGC_17"
/tissue_type="rhabdomyosarcoma"
/lab_host="DHIOB (phage-resistant)"
/lab_host="DHIOB (phage-resistant)"
/note="Organ: muscle; Vector: pOTB7; Site_1: EcoRI;
/note="Organ: pOTB7; Site_1: EcoRI;
/note="Organ: muscle; Vector: pOTB7; Site_1: EcoRI;
/note="Organ: pOTB7; Site_1: EcoRI;

                                                                                                                                                                                       þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:11251065
10.3
81.50
40.54%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      _xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chordata;
Primates;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           867 bp mRNA line
   Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----GTGAATGAGGCCAAGAGCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Craniata; Vertebrata; Euteleostomi; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gene Collection (MGC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IMAGE:4121003 5',
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EST 21-NOV-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        402
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      118
```

```
Best Local S
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 35
BQ732001
LOCUS
                                                                                                                                                                                                                     REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x BF304340
                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GIGGICATGATICCTICCACGATACCAAAGTIGICATGGATG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CATGTAAACCATGTA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluValValValLeu 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsn 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGAACATGGGGGCATCAGCAGAGGGGGCAGAGATGATGACCCTTTTTGGC-TCCCCCCTG 374
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAGGAGGCATTGCTGATGATCTTGAGCTGTTGTCATACTTCTCATGGTTCACACCCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValAsnThrIleLysSerAspLeuGluIle-----PheGlyArgLeuThrProVal 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AACAATATCCACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGlu 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATCTCGCTCCTGGAAGATGGTGATGGGATTTCCATTGATGACAAGCTTCCCGTTCTCAGC 222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---CCAGTGGACTCCACGACGTACTCAGCGCCAGCATCGCCCCACTTGAT-TTTGGAGGG 282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CANATGAGCCCAGCCTTCTCCATGGTGGTGAAGACG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnMetProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMet 1.31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----GlyAspGlyIleLysMetHisGluThrValIleAsn-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisVal 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------CTTGACGGTGCCATGGAATTTGCCATGGGTGGAATCATATTGGAA 177
               Bmail: cgapbs-r@mail.nih.gov
Tissue Procurement: Dr. Igor Dawid
cDNA Library Preparation: Life Technologies, Inc.
cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)
DNA Sequencing by: Agencourt Bioscience Corporation
Clone distribution: NCI-CGAP clone distribution information
found through the I.M.A.G.E., Consortium/LLNL at:
                                                                                                                                                                                                                                                                                                                                                                                               BQ732001 918 bp mRNA line:
AGENCOURT 8222629 NICHD XGC Emb4 Xenopus laevis
                                                                                                                                                                               NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anat
Tumor Gene Index
                                                                                                                                                                                                                                                                      Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidea; Pipidae;
                                                                                                                                                                                                                                                                                                            African clawed frog
Xenopus laevis
                                                                                                                                                                                                                                                                                                                                                           BQ732001
BQ732001.1 GI:21870898
                                                                                                                                             Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                Unpublished (1997)
                                                                                                                                                                                                                                                         Xenopodinae;
                                                                                                                                                                                                                                    (bases 1 to 918)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----ACTTGGCCAGGGGTGCTAAGCAGTTGTGTT
llnl.gov/bbrp/image/image.html
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21.08%
7.28%
                                                                                                                                                                                                                                                       Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (1-867)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -GTTGAGGTCAATGAAGGGGTCATTGATGGC 1.32
                                                                                                                                                                                                  Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          64
48
7
                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                      EST 16-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                338
                                     can
```

```
밁
                                                                                                        S
                                                                                                                                                                            밁
                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
RESULT 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x BQ732001 (1-918)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      М
: .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       source
                                                          695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              371
                                                                                                                                                                                                                                                                                                 590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                356
                                                                                                                    203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     296 TGCTACATATTTGAAATTAACAATGTTCAATTAAGTGAAGGAGGAGAATATTCATGCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       236 TACAGGAATTCATCATTGCTTGACAACTCAGACAGAATTAAAATATCAACGGAAGGTCAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AATTATACACTAAGCTTTGCTGTGGAAGTAGTTGGAGTTCCCTTACCAGACATACAATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeu 38
                                                                                                                    LeuValThrGluGluVal
                                                                                                                                                                                                                                   AsnProAlaValCysGlnGluPheValAsnSerValPheCysGln-----
                                                                                                                                                                                                                                                                                                                                                                                                                   CTA---GATGAAAGTGAAGTCAAAGATTTTGAGAAGCAGGTGAAGATCATAACAATACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTCATACTTCACGATCA------CCTTCCCCTCAAGAAATTCTTTTAGAAGTTGAG 532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCAGTTGCATTACCACCACCAGTGACACCAGCATGTTATGGAATTCGATATGGAACCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValIleLeuLeu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCTCA-----AATACACTA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysVal
                                                             AAAATTAATTTTGAAGTC
                                                                                                                                                                                                                                                                                                 GAATTTTCACCTGATAATAAGAGCATGGNTATTTCTCTTGATGTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Plate: LLAM12228
High quality sequ
                                                                                                                                                                            CTTTGGTATATGATGAGCAACTGTCATCCATATTCACAAGAGATAATGAAGAGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               quality sequence stop: (
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAGTGGCAAGAACTACTACCCTGGTTGATATTTTACCTCATGATGGCAGA 421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /dev_stage="embryo, stage 31-32"
/lab_host="DH10B (phage-resistant)"
/lab_host="DH10B (phage-resistant)"
/note="Organ: whole embryo; Vector: pCMV-SPORT6; Site_1:
/note="Organ: whole embryo; Vector: pCMV-SPORT6; Site_1:
/note="Organ: whole embryo; Vector: pCMV-SPORT6; Site_1:
/note="Organ: All proposed propos
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 clone="IMAGE:5537366"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism≂"Xenopus laevis"
db_xref="taxon:8355"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               clone_lib="NICHD XGC Emb4"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11.3
81.50
40.29%
22.33%
7.28%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           165
                                                                                                                                                                                                                                                                                                                                                     --AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGln 184
                                                             712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          row: i column:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrAspGlyHis---AsnAsnLeuGlyMetAsnPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     174 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 685.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        256 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     918
46
37
80
43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2 others
                                                                                                                                                                                                                                   GluGlnIle 202
                                                                                                                                                                                                                                                                                                                                                                                                                   589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               58
                                                                                                                                                                               694
                                                                                                                                                                                                                                                                                                 637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             78
```

```
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
                                                                                      Ś
                                                                                                                                                 ð
                                                                                                                                                                                       밁
                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                               Ş
                          8
                                                         밁
                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
 밁
                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x AY104471 (1-1713)
                                                                                                                                                                                                                                                                                                                                                                                                                                               Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  source
                                                             686
                                                                                                                                                                                         566
 746
                                                                                            102
                                                                                                                          626
                                                                                                                                                                                                                                                        506
                                                                                                                                                                                                                                                                                                                     455
                                                                                                                                                        99
                                                                                                                                                                                                                        86
                                                                                                                                                                                                                                                                                      83
                                                                                                                                                                                                                                                                                                                                                   48
                                                                                                                          ACAGGCAGGAAGCTATCTGAGTCCATTAACGAACAGAATGAGAACTGCAAATACTTGCCA
 GCGAATATGCTGGTTTTTGTGACGCCCCATCAATTTGTGGAGGGTATATGTAAGAAGCTT
                                                           GGTATAAAGCTTGGAACGAATGTTATTGCCGACCCTGACTTGGAGAGCGCAGTCAAAGAC 745
                                                                                       GlyIleLysMet----
                                                                                                                                                         ValGly----
                                                                                                                                                                                         GCCAAGCTGCCCTCCTTCTATGATGAAGTAAGGATGTGGGTGTTTGAGGAAATACTGCCT
                                                                                                                                                                                                                        IleLysSerAsp--
                                                                                                                                                                                                                                                      GCCGTCATTGGCAGCGGCAACTGGGGCAGCGTCGCCTCCCGCCTCATCGCCTCCAACACCC
                                                                                                                                                                                                                                                                                    ---IleIleProGlnGlySerTrpAsnSerCysValAlaGlu---CysAlaValAsnThr
                                                                                                                                                                                                                                                                                                                                               AlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerVal
                                                                                                                                                                                                                                                                                                                   GCCCGCCTGCCGGAGATGGAGATGGAGAACGGG-----CACGCCAAGTACCGGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (25-APR-2002) Maize Mapping Missouri, Columbia, MO 65211, USA Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Claue, Function (Dases 1 to 1713)

1 (bases 1 to 1713)

Hainey, C.F., Dolan, M., Miao, G.H., Vogel, J.M., Whitsitt, M.S., Arthur, L.W., Hanafey, M., Morgante, M. and Tingey, S.V.

Arthur, L.W., Hanafey, M., Morgante, M. and Sequences for Design
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zea mays
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; PACC
clade; Panicoideae; Andropogoneae; Zea.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AY104471
Zea mays PCO114342 mRNA
AY104471
AY104471.1 GI:21207549
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Maize Mapping Project/DuPont
Overgo Probes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Coe, E.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (2002)
2 (bases 1 to 1713)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mapping
a 404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="this sequence is part of a project of EST assemblies resulting from the application of public contigs to seed DuPont contigs; this resource was assembled by DuPont as part of a collaboration for the overgo addressing of BACs in conjunction with the Maize Mapping Project"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /organism="Zea mays"
/db_xref="MaizeDB:636659"
/db_xref="taxon:4577"
/clone="PCOl14342"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Library
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone_lib="Maize Mapping Project/DuPont Cornsensus
                                                                                                                                                                                                                                                                                                                                                                                                                31.8
81.50
32.50%
21.67%
7.28%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           433 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1713 bp
sequence.
                                                                                                                                                                                                                     -----LeuGluIlePheGlyArgLeuThrPro
                               HisGluThrVal-----
                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             443 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         conjunction with the Maize
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Project, University
                                                                                                                                                                                                                                                                                                                                                                                                                1713
52
26
55
107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for Design of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HIC
                                                                                                                                                      ----Asp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of
                                                                                                                                                      101
                                                                                                                          685
                                                                                                                                                                                                                                                                                    85
805
                                                                                           105
                                                                                                                                                                                         625
                                                                                                                                                                                                                       98
                                                                                                                                                                                                                                                      565
                                                                                                                                                                                                                                                                                                                   505
                                                                                                                                                                                                                                                                                                                                                   67
```

```
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BG447392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                   Best Local Similarity:
                                                                      Alignment
Pred. No.:
                                                                                                                        ORIGIN
                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
   Query Match:
                                    Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1046
                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        926
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATATCGTGGCTATTGCAGCAGGC-----CTTGTGGATGGCTTGGATATGGGAAACAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TACTTCCTAGTTTCTGTCGCAGAAGATATTGAAGGAGTAGAGCTGTGTGGAACTCTGAAA 1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGCTCATGGGTGCTAACATTGCAAAACGAGATTGCTGTCGAAGAGTTCAGTGAAGCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIle------IleAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTGGGTÄTAGGAAAGATAAGGAAĞTĞGCAAATCGATGGGCTAAACTTTTTACCACACCC 1045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGAAGGGCCATGCATGATATCCAAGTTAATCGCGGATACACTTGGAATCAATTGCTGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTAGGGAAGCTAACACCAGGAGCTGAGGCTATCTCCCTCATCAAGGGCATGGAGGTCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Wing,R.A., Frisch,D., Yu,Y., Main,D., Rambo,T., Simmons,J.,,D., Wood,T.C., Leslie,A. and Wilkins,T.A. An integrated analysis of the genetics, development, and evo of the cotton fiber
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gossypium arboreum
Gossypium arboreum
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Rosidae; eurosids II; Malvales; Malvaceae; Gossypium.

I (bases 1 to 601)
Vicent Priceh Control Main D. Babbo T. Simmons I. Henry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BG447392
GA_Eb0042I01f Gossypium
arboreum cDNA clone GA_E
BG447392
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Clemson University Genomics Institute
Clemson University
100 Jordan Hall, Clemson, SC 29634, U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unpublished (2000)
Contact: Wing RA
                                                                                                                                                                                                                                                                                                                                                                                                                       Tel: 864 656 7288 Fax: 864 656 4293
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gossypium arboreum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BG447392.1
                                                                                                                                                                                                                                                                                                                                                                    High quality sequence stop:
                                                                                                                                                                                                                                                                                                                                                                                                     Email: rwing@clemson.edu
                                                                                                                                                                                                                                                                                                                                                                    primer: TAATACGACTCACTATAGGG
primer: TAATACGACTCACTATAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrGlnThrAsnProAsnValCys------
                                                                                                                                          164
                                                                                                                                          Ø
                                                                                                                                                                                                       /clone="GA_Eb0042I01f"
/clone_lib="Gossypium arboreum
/tissue_type="Fibers isolated f
                                                                                                                                       /note="Vector:
                                                                                                                                                                                                                                                                                 cultivar="8400"
                                                                                                                                                                                                                                                                                                   strain="AKA"
                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                  organism="Gossypium arboreum"
                                                                                                                                                                         lab_host="E. coli"
6.52
81.00
40.39%
21.18%
7.24%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:13357044
                                                                                                                                                                                                                                                              xref="taxon:29729"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----HisAsnAsnLeuGlyMetAsn-----
                                                                                                                                          131 g 192 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----ProValGluGluValLysSerIle---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      601 bp mRNA linear EST 15-MAR-2001
m arboreum 7-10 dpa fiber library Gossypium
_Eb0042I01f, mRNA sequence.
                  Length:
Matches:
Conservative:
Mismatches:
       Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           29634, USA
                                                                                                                                                                                                               from
                                                                                                                                                                                                               7-10 dpa fiber library"
from bolls harvested 7-10
                                                                                                                                                            EcoRI; Site_2: XhoI"
     601
43
39
77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and evolution
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 125
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                   RESULT 38
BH563226
LOCUS
DEPINITION
                                                                                                                                                                                                                                                                                                                  ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB:
                                                                                                                         COMMENT
                                                                                                                                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                          581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      230
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36
                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGTTCTCA 589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AsnPheAla 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATATT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITGITGATGATTCTITGAGAATTCTACCGAACTGCCGGTTAACTTCAGAATATTTGTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---LeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsn 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGGCATTCTCGTCTGCGTCCCAAACTGGATGAGTTCTTACCTCGAGCAGCTGGCATTGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAla 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGlu 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CGCGCAAAATCTAATACCATTATACTCACTGGCCTTAGTGGAAGTGGTAAAAACTGTTCTT 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ::: ::|||
GCTGCTATTGCTGTTTTCTACCCTCTTGCTTTTTTTTCATTCGCTTGTTCAAA 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerCysValAlaGluCysAlaValAsnThrIle------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGAAATGT-TTGCATGAAGCCATTGAGTATTTGAATCAAATACCCCCTGTTCAATTATAT 1.69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGAAAGATCAATTAGAGCAGTTGAAGAGTCAAATGGAGCCATGGA-AGAATCAGTTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerValPheCysGlnGluGlnIleLeuValThrGluGluValValValLeuArgGlyVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTCTATCAGCTTCGTGATGGT---TCTGTGCATCAGGGTACCATTACATCTATGGAGCCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----LysSerAspLeuGluIlePheGlyArgLeuThrProValGly------
                                                                                                                                        Whole genome shotgun sequencing 
Unpublished (2001)
                                                                                                                                                                                                                                                                                                                                                                 BH563226 628 bp
BOGDT16TF BOGD Brassica oleracea
                                                                                                     Other_GSSs: BOGDT16TR
Contact: Chris Town
                                                                                                                                             1 (bases 1 to 628)
1 (bases 1 to 628)
Town,C.D., Van Aken,S., Utterback,T. and Fraser,C.M.
                                                                                                                                                                                                                         Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
                                                                                                                                                                                                                                                              Brassica oleracea
                                                                                                                                                                                                                                                                                                                  BH563226.1
                                                                                                                                                                                                           Rosidae; eurosids II; Brassicales; Brassicaceae; Brassica
                                                                                                                                                                                                                                                                                Brassica oleracea.
   18
                              Medical Center Drive,
301-838-3523
301-838-0208
                  cdtown@tigr.org
from a doubled haploid provided by Tom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   x BG447392
                                                                                                                                                                                                                                                                                                                  GI:17815066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-601)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -CTGACTAAAGCCAATGTGGTCAAGAAGAAAATT
                                                                    Rockville,
                                                                                                                                                                                                                                                                                                                                                                   genomic
                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CATATTGTTGATATACCC
                                                                    20850,
                                                                                                                                                                                                                                                                                                                                                                   clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       σ
                                                                                                                                                                                                                                                                                                                                                                                     linear
 Osborn
                                                                                                                                                                                                                                                                                                                                                                   BOGDT16,
                                                                    USA.
                                                                                                                                                                                                                                                                                                                                                                                    GSS
                                                                                                                                                                                                                                                                                                                                                                   14-EEC-2001
DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4.81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              03ء
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                      JOURNAL COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 39
BG850892
                                                                                                                                                                                                                                                                                                                                 SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                   KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                     VERSION
                                                                                                                                                                                                                                                                                                                                                                                                      ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                          POCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x BH563226 (1-628)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pred
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FEATURES
                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                               AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 184 GlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           125 GlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204 ValThrGluGluValValVal 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     164 IleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAGACTATGGAGGTATATATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---ProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIle 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGGTACAATCAGATCATGAATCCCGACGATCGTGAGAAAACTGCGTTCATCACCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGGGAAACATATTGCTACAAAGTAATGCCTTTCGGT-----
                                                             Duke University
Durham, NC 27708-1000
Tel: 919 613 8159
Fax: 919 613 8177
                                                                                                                                                                                                                                                                                                                                                                                                                   BGB50892 656 bp mRNA linear 1024029F10.yl C. reinhardtii CC-1690, normalized, Chlamydomonas reinhardtii cDNA, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Seq primer: TF
Class: sheared ends.
                                                                                                                                        DCMB Box 91000
                                                                                                                                                                   Vascular Plants; project Unpublished (2000)
                                                                                                                                                                                     Grossman, A., Davies, J., Federspiel, N., Harris, E., Lefebvre, P., McDermott, J.P., Silflow, C., Stern, D. and Surzycki, R. Analyses of the Chlamydomonas reinhardtii Genome: A Model, Unicellular System for Analyzing Gene Function and Regulation Vascular Plants; project phase 2
                                                                                                                                                                                                                                                                                                             Chlamydomonas reinhardtii.
Chlamydomonas reinhardtii
Eukaryota; Viridiplantae; Chlorophyta; Chlorophyceae; Volvocales;
                                                                                                                                                                                                                                                                                              Chlamydomonadaceae; Chlamydomonas
                                                                                                                                                                                                                                                                                                                                                                                     BG850892.1 GI:14232076
                                                                                                                                                                                                                                                                                                                                                                                                      BG850892
                                                                                                                                                                                                                                                                          (bases 1 to 656)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----CTCAAGAATGCGGGC-
                                                 chauser@duke.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCACTTGCCAGCGACTTGTCAATCAAATTTTC---TCCGAACAGCTCGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /clone_lib="BOGD"
/note="Vector: pHOS1; Site_1: BstXI; 2-3 kb sheared genomic DNA inserted into pHOS1 using BstXI linkers"
a 158 c 150 g 142 t
/organism="Chlamydomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /db_xref="taxon:3712"
/clone="BOGDT16"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Brassica/
strain="TO1000DH3"
                             Socation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    7.02
81.00
41.38%
27.59%
7.24%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . 628
                                                                                                                                                      Hauser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        150 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                oleracea"
reinhardtii"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    24
12
23
28
                                                                                                                                                                                                                                                                                                                                                                                                                                        Lambda Zap II
                                                                                                                                                                                                                                                               Lefebvre, P.,
```

무 ş 문 र् 밁 ð 밁 ঠ 밁 ð В र् 밁 ક 밁 á 밁 δ 밁 S 밁 ş

EST 29-MAY-2001

ä

175 203 183

127

144

```
RESULT 40
AI684487/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x BG850892 (1-656)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .
No.:
                                                                                           474
                                                                                                                                       196
                                                                                                                                                                                   429
                                                                                                                                                                                                                                                                            369
                                                                                                                                                                                                                                                                                                                      156
                                                                                                                                                                                                                                                                                                                                                                     351
                                                                                                                                                                                                                                                                                                                                                                                                             136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               216 TCGGGCGGCCTGGACACC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56 GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             44 LeuLysIleAsnAlaAlaMetProLysMet------SerTyr 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysHisValAlaValArg------GluProLysIleGluLeuAlaLysGluAlaIle 43
                                                                                        CTCATCGCCAAGCGCCAGATCGAGATCGCCAAGGAGGTGGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCTCGGTGAACGCGGCAGCCCCCAAGATGGGCCAGGTTAAGAAGGTGGTGCTGGCCTAC 215
                                                                                                                                       ValPheCysGlnGluGlnIleLeuValThrGluGluValVal
                                                                                                                                                                                                                                                                                                                                                                                                             GluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAla 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGlu 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CAGGACACCTACGGCTGCGAGGTGGTCACCTTCACCGCCGACCTG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CGCCATGTGAGCTCGCGGGCCAAGCCGGCGCCGCCGATGCGC---GGTCGCAAGGTTTGC 155
                                                                                                                                                                                   CTATACGAGGCACCTACCTGCTGGGCACC--
                                                                                                                                                                                                                         LeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSer 195
                                                                                                                                                                                                                                                                            GACGACCTGCGCGAGGAGTTCGTGCGCGACTACGTGTTCCCCATGTTCAGGGCCAACGCG
                                                                                                                                                                                                                                                                                                                    AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerVal 175
                                                                                                                                                                                                                                                                                                                                                                     ---GTCAAGCAGATC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
    AI684487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     mid-log phase in TAP (acetate-containing) medium in the light, TAP medium in the dark, HS (minimal) medium in ambient levels of CO2 and HS medium bubbled with 5% CO2. PolyA mRNA was purified from each sample, pooled and cDNA synthesized. The cDNA was directionally cloned into lambda ZAP II (Stratagene) in the EcoRI (5') and KhoI (3') sites. pBluescript II SK- plasmids were excised from the lambda ZAP clones by superinfection with ExAssist (Stratagene) phage. The library was normalized using method 4 described in Bonaldo et al (1996) Genome Research 6: 791-806."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="Vector: pBluescript II SK-; Site 1: EcoRI; Site 2: XhoI; This library, constructed by John Davies and Jeffrey McDermott, combines cDNAs from CC-1690 cells grown to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /strain="CC-1690 wild type mt+ 21gr"
/db_xref="taxon:3055"
/clone_lib="C. reinhardtii CC-1690, normalized, Lambda Zap
II"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -GGCCAGGGCGAGGAGCTGGAG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7.54
81.00
35.57%
22.68%
7.24%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GAGAAGATGGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                196 g
    764
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -TCCATCATCCTC-----AAGTGGCTG 254
    åq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132 t
    mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                444
59
59
11
                                                                                                                                       209
                                                                                           515
                                                                                                                                                                                   --TCCATTGCGCGCCCG 473
    linear
                                                                                                                                                                                                                                                                                                                                                                     -TTTATT 368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -ccrecc
    EST 07-MAR-2000
                                                                                                                                                                                                                                                                            428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    95
                                                                                                                                                                                                                                                                                                                                                                                                                                                              350
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        299
```

밁 á 밁 Ś 밁 Ś

á 밁 ş

S

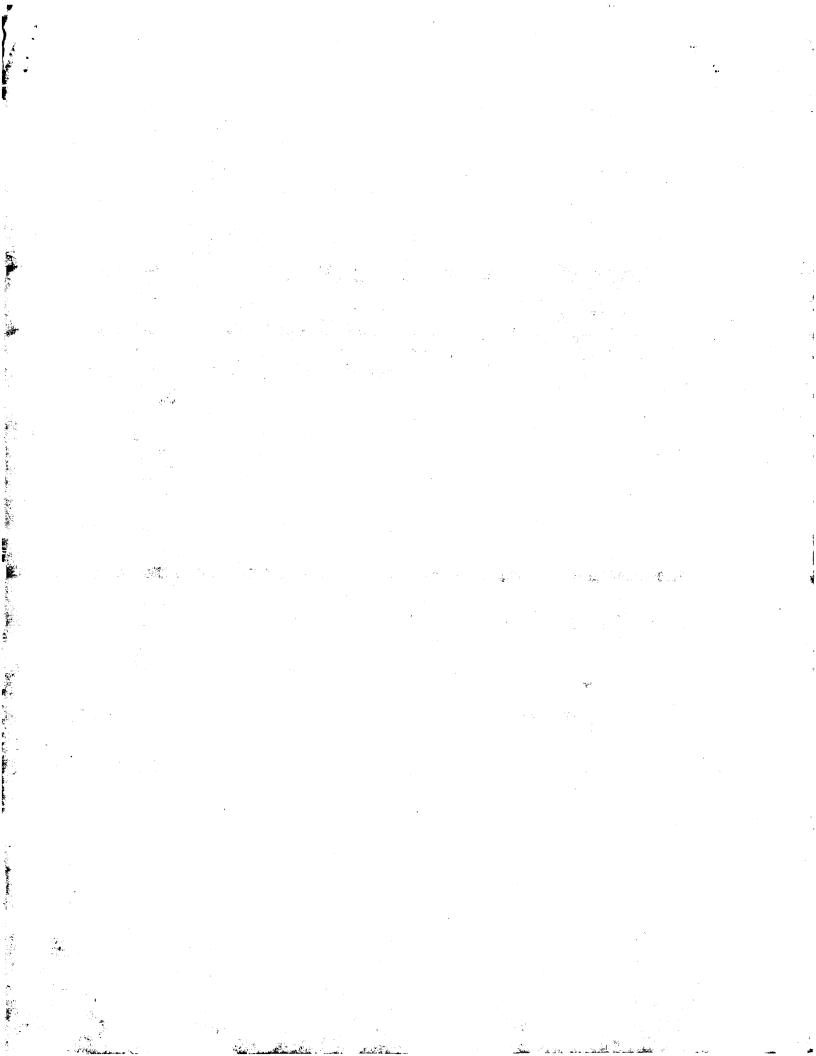
S 밁 á 멍 δ 밁 Ś

밁

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
VERSION
KEYWORDS
                                                                                   밁
                                                                                                                            Ś
                                                                                                                                                                         밁
                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DEFINITION
                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-034-500-2 (1-218) x AI684487 (1-764)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
                                                                                                                                                                                                                                                                                                                                                     670
                                                                                        571
                                                                                                                                                                         616
                                                                                                                                                                                                                                                               617
  511 CACACTCCT-
                                                                                                                                                                                                                                                                                                                                                                                         22 GlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLysGlu
                                          96
                                                                                                                              80
                                                                                                                                                                                                                    62
                                                                                                                                                                                                                                                                                                          42
                                                                                                                                                                                                                                                                                                     AlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThr 61
                                                                                     GAAGAACCGGAAGATCATATTAAGGCTGCAGCTGCTTGGGCCTTAGGACAGATTGGAAGA 512
                                                                                                                                                                                                           PheAlaProTyrSerValIleIleProGlnGly-----SerTrpAsnSerCysValAla 79
                                                                                                                                                                                                                                                                                                                                                     GGCATCATGATGCTTGGTTATGTAGCAGCTCATTCTGAGACCATAGCAATGGCA-----
                                        LeuThrProValGlyAspGlyIleLysMetHisGlu-----ThrValIleAsnGln 112
                                                                                                                              GluCysAlaValAsnThrIleLysSer----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 wa82f03.x1 Soares_NFL_T_GBC_S1 Homo sapiens cDNA clone
IMAGE:2302685 3' similar to TR:075602 075602 SPERM FLAGELLAR
PROTEIN_REPRO-SA-1. ;, mRNA sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Email: cgapbs-r@mail.nih.gov
This clone is available royalty-free through LLNL; contact the
IMAGE Consortium (info@image.llnl.gov) for further information.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1. (bases 1 to 764)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Tumor Gene Index
Unpublished (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCI-CGAP http://www.ncbi.nlm.nih.gov/ncicgap.
National Cancer Institute, Cancer Genome Anatomy Project (CGAP),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Seq primer: -40UP from Gibco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IMAGE Consortium (in:
Insert Length: 1814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Contact: Robert Strausberg, Ph.D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AI684487.1 GI:4895781
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  quality sequence stop: 461.
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from the same 3 libraries. The pools consisted of I.M.A.G.E. clones 297480-302087, 682632-687239, 726408-728971, and 729096-731399. Subtraction by Bento Soares and M. Fatima Bonaldo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="Organ: pooled; Vector: pT7T3D-Pac (Pharmacia) with a modified polylinker; Site 1: Not I; Site 2: Eco RI; a modified polylinker; Site 1: Not I; Site 2: Eco RI; and amounts of plasmid DNA from three normalized libraries (fetal lung NbHL19W, testis NHT, and B-cell NCI CGAP GCB1) were mixed, and ss circles were made in vitro. Following HAP purification, this DNA was used as tracer in a subtractive hybridization reaction. The driver was PCR-amplified cDNAs from pools of 5,000 clones made was PCR-amplified cDNAs from pools of 5,000 clones made
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /clone_lib="Soares_NFL_T_GBC_S1"
/lab_host="DH10B"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              clone="IMAGE: 2302685"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9.71
81.00
37.02%
21.63%
7.24%
                                                                                                                                                                           GTCATCATTTCTAAGGGTGTACCCAGTTTGTCAGTCTGCTTGTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 163 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Std Error: 0.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             163 g
---GAACACGCACGGCTGTTGCAGTCACAAATACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
                                                                                                                              --AspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      764
45
32
55
76
                                                                                                                                                                                                                                                                                                                                                         617
                                                                                                                                                                              572
                                                                                                                                                                                                                                                                                                                                                                                                    41
                                                                                                                                   95
                                                                                                                                                                                                                                                                   617
```

Search completed: April 8, 2003, 06:04:09 Job time: 1371 secs



```
Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Run
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Listing first 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Word size
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  hits
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 262574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OLIGO
Gapop 60.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . . . . . . . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2
218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     April 9, 2003, 14:41:28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AEVTASCTKRVESYNYLVDY...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /cgm2_6/ptodata/1/iaa/5A_COMB.pep:*
/cgm2_6/ptodata/1/iaa/5B_COMB.pep:*
/cgm2_6/ptodata/1/iaa/6A_COMB.pep:*
/cgm2_6/ptodata/1/iaa/6B_COMB.pep:*
/cgm2_6/ptodata/1/iaa/FCTUS_COMB.pep:*
/cgm2_6/ptodata/1/iaa/backfiles1.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 satisfying chosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   seqs,
     GenCore version 5.1.4 p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29422922 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gapext
 US-09-196-293-15
US-08-128-336C-32
US-08-29-603E-15
US-08-225-836C-30
US-09-370-838-43
US-09-370-838-43
US-09-370-838-43
US-09-370-838-43
US-09-370-838-43
US-09-370-838-40
US-09-370-838-40
US-09-370-838-40
US-09-370-838-40
US-09-370-838-40
US-09-235-836C-110
US-08-235-836C-122
US-09-262-373-95
US-08-942-39
US-09-262-942-39
US-09-057-869-33
US-09-026-958-2
US-09-026-958-2
US-09-026-958-2
US-09-057-860-20
US-08-177-109A-60
US-08-177-109A-60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mode1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Search time 28 Seconds (without alignments) 229.078 Million cell u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     QEQILVTEEVVVLRGVNFAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Description
 sequence
 e 15, Appl
e 3, Appl
e 3, Appl
e 3, Appl
e 15, Appl
e 15, Appl
e 37, Appl
e 37, Appl
e 37, Appl
e 44, Appl
e 46, Appl
e 50, Appl
e 51, Appl
e 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     218
                                                                                                                    US-08-031-295-2
US-07-903-580-2
US-07-903-580-2
US-09-452-239-26
US-09-452-239-18
US-09-452-239-26
US-09-189-627A-2
US-09-189-627A-2
US-09-189-627A-2
US-09-189-627A-2
US-09-189-627A-2
US-09-189-627A-2
US-09-199-637A-267
US-09-199-637A-267
US-08-840-767-11
US-08-840-767-16
US-09-096-7768-6
 sequence
 2, Appli
20, Appli
21, Appli
21, Appli
21, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
27, Appli
28, Appli
29, Appli
20, Appli
21, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
27, Appli
28, Appli
29, Appli
20, Appli
20, Appli
21, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
27, Appli
27, Appli
28, Appli
29, Appli
20, Appli
20, Appli
20, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
27, Appli
28, Appli
29, Appli
20, Appli
20, Appli
20, Appli
21, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
26, Appli
27, Appli
28, Appli
29, Appli
20, Appli
20, Appli
20, Appli
20, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
26, Appli
27, Appli
28, Appli
29, Appli
20, Appli
20, Appli
20, Appli
20, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
26, Appli
27, Appli
28, Appli
29, Appli
20, Appli
20, Appli
20, Appli
20, Appli
20, Appli
20, Appli
21, Appli
21, Appli
22, Appli
23, Appli
24, Appli
25, Appli
26, Appli
26, Appli
27, Appli
28, Appli
28, Appli
29, Appli
20, App
```

166 167 168 169 170 171	160 162 163 164	156 157 158 159	1 W 4 R																					
ហហហហហហហហ	ហហហហហហ	ហេហហហ	ហេហហេប	சு <b>ப</b> ோபா ப	лоо	თ თ თ	თთσ	n on or o	יסטע	თთთ	თთთ	თთთ	თთთ	. თ თ	თთ	თთი	n 01 0	n on c	n on 0	ካ ወ ፡	თთ	თ თ	<b>თ</b> თ (	ካወወ
, , , , , , , , , , , , , , , , , , ,																								
					567		337																	
5 PCT-US95-04886-7 5 PCT-US95-04886-9 5 US-08-789-078-7 2 US-08-789-078-8 2 US-08-752-633-7 2 US-08-844-978-4 3 US-08-844-978-7 5 PCT-US95-04886-7																								
Sequence 9, Appli Sequence 9, Appli Sequence 7, Appli Sequence 8, Appli Sequence 7, Appli Sequence 8, Appli Sequence 7, Appli Sequence 7, Appli	Ce 95 Ce 3, Ce 3,	Ce 23	Ce 51	Ce 13	Ce 4,	Ce 2,	Ce 2,	Ce 2,	ce 31	ce 4,	ce 15 ce 15	666 44.	ce 38	9 6 9 6,	2,2	ce 94	Ce 92	1 C C C C C C C C C C C C C C C C C C C	30 46 46	ce 13	ce 13	2 e 2,	2e 2,	Ge 4,
p. p. p. p. p. p. p. p. p	Öli App Öli Öli	991 1991 1991	ز در در ا	i gri	ر .بر .بر ت	h. h. h	. р. р. р	P. F	י סי סיר	h. h h.							י קיי	<b></b> - •	ر نتر .د	<b>.</b> р				<sub>F</sub>
238 240 241 241 242 243 244 244 245										· · · · <del>-</del>			•											174
	233 235 236 237 238	229 230 231 232 232	226 227 228	2224	220 221 231	217 218 219	216 215 214	212	209 210 211	206 208	203 204 205	200 201 202 202	198	195	193 194	191 192	189	187	185	183	181 182	179 180	177	174 175
238 240 244 244 244 244 244	234 235 235 236 237 238 5 238	2229 5 5 2 2 2 5 5 2 2 5 5 2 2 5 5 5 5 5	226 5 2 227 5 2 228 5 2	223	220 5 2 221 5 2 222 5 2	217 5 2. 218 5 2. 219 5 2.	215 215 216 5 2	2112	209 5 2. 210 5 2.	206 5 2. 208 5 2.	203 5 2 204 5 2 205 5 2	200 5 2. 201 5 2. 202 5 2.	. 198 5 2. 199 5 2.	196 5 2.	193 5 2. 194 5 2.	192 5 2.	100 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1007	1200	183 5 2.	181 5 2. 182 5 2.	179 5 2. 180 5 2.	177 5 2. 178 5 2.	174 5 2. 175 5 2.
239 5 2.3 25 240 5 2.3 25 241 5 2.3 25 242 5 2.3 25 243 5 2.3 26 245 5 2.3 27 246 5 2.3 27	233 5 2.3 25 23 25 25 23 25 25 23 25 25 23 25 25 23 25 25 23 25 25 25 25 25 25 25 25 25 25 25 25 25	229 230 231 5 232 5 233 7 5 2.3 24 2.3 24	226 5 2.3 22 227 5 2.3 22 228 5 2.3 22	223 223 5 2.3 225 5 2.3 227 227 227 227 227 227 227 227 227 22	220 5 2.3 22 220 5 2.3 22 220 5 2.3 22	217 5 2.3 22 218 5 2.3 22 219 5 2.3 22	215 5 2.3 22 216 5 2.3 22	212 5 2.3 21 5 2.3 21 5 2.3 22 22 22 22 22 22 22 22 22 22 22 22 22	209 5 2.3 21 210 5 2.3 21 211 5 2.3 21	206 5 2.3 21 207 5 2.3 21 208 5 2.3 21	203 5 2.3 20 204 5 2.3 20 205 5 2.3 20	200 5 2.3 20 201 5 2.3 20 202 5 2.3 20	198 5 2.3 20 199 5 2.3 20	196 5 2.3 20	193 5 2.3 20 194 5 2.3 20	191 5 2.3 19 192 5 2.3 20	189 5 2.3 18	187 5 2.3 17	1865 5 2.3 17	183 5 2.3 16 184 5 2.3 16	181 5 2.3 16 182 5 2.3 16	179 5 2.3 15 180 5 2.3 16	177 5 2.3 13 178 5 2.3 13	174 5 2.3 12 175 5 2.3 13 176 5 2.3 13
2240 240 240 241 241 244 244 35 36 36 36 36 36 36 36 36 36 36 36 36 36	233 5 2.3 25 4 4 23 25 2 3 25 2 3 25 2 3 25 2 3 25 2 3 25 2 3 25 3 25 3 25 4 4 2 3 25 4 2 3 2 5 4 2 3 2 5 4 2 5 3 2 5 4 2 5 4 2 5 3 2 5 4	229 5 2.3 24 2 232 5 2.3 24 2 232 5 2.3 24 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	226 5 2.3 22 4 227 5 2.3 22 4 228 5 2.3 22 4 228 5 2.3 22 5	223 5 2.3 22 3 224 5 2.3 22 3 225 5 2.3 22 3	220 5 2.3 22 2 221 5 2.3 22 2 222 5 2.3 22 3	217 5 2.3 22 1 218 5 2.3 22 1 219 5 2.3 22 1	215 5 2.3 22 1 216 5 2.3 22 1	213 5 2.3 21 5 2.3 22 1 5 2.3 22 1 5 2.3 22 1	209 5 2.3 21 2 210 5 2.3 21 2 211 5 2.3 21 5	206 5 2.3 21 2 208 5 2.3 21 2 208 5 2.3 21 2	203 5 2.3 20 2 204 5 2.3 20 2 205 5 2.3 20 2	200 5 2.3 20 2 201 5 2.3 20 2 202 5 2.3 20 2	198 5 2.3 20 1 199 5 2.3 20 1	195 5 2.3 20 1 196 5 2.3 20 1	193 5 2.3 20 1 194 5 2.3 20 1	191 5 2.3 19 4 192 5 2.3 20 1	100 5 2.3 18 1	1807 5 2.3 17 4	186 5 2.3 17 2	183 5 2.3 16 4 184 5 2.3 16 6	181 5 2.3 16 2 182 5 2.3 16 4	179 5 2.3 15 5 180 5 2.3 16 1	177 5 2.3 13 4 178 5 2.3 13 5	174 5 2.3 12 5 176 5 2.3 13 3 176 5 2.3 13 3

15 16 17 18	312 313	310	307 308	305 306	303 304	302	300	298 299	297	295 296	294	293	292	290	289	288	286	285	284	282	281	280	278	277	276	274	273	272	270	269	268	267	) K N O N U	2614	263	262 262	260	259	258	257	256	255	2 P. C.	220	201	350	249	248
ហេហហហហ	រហេហប	ហេហ	ហហ	ហ ហ	ഗ ഗ	ហហ	יטינ	лU	<b>ரு</b> (	տ տ	n UT	v,	o u	лvi	· Uī	տւ	лU	າທ	σı	ח טי	ı Uī	UT C	ເທ	<b>ن</b> ر	ט זע	າທ	σ,	ט וע	n (r	v	5	o (	n u	າ <b>ບ</b> າ	σ.	ט וע	າເກ	ហ	υ	un (	<b>σ</b> (	лı	J (	лu	nυ	n U	· (r	י ני
												•		•	•		•				•					٠							•	•					•								•	
22.00	US-08-3 US-08-3	US-08-3 US-08-3	US-08-3 US-08-3	US-08-3	US-08-3 US-08-3	US-08-3	US-08-3	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-4	US-08-6	US-09-3	US-09-0	0-60-50	US-09-1	US-09-3	115-09-2	8-80-SD	US-08-9	8-80-SN	US-08-4	US-08-4	US-08-4	US-08-4	0-60-50	0-09-0	US-09-0	US-08-8	0S-08-8	0S-08-8	115-08-2	119-08-2	110-09-0	08-09-4	US-09-4	US-08-8	0S-08-8
Sequence 18, A Sequence 18, A Sequence 33, A Sequence 34, A Sequence 35, A	equence 44, equence 45, equence 46, equence 46,	equence 42, equence 43,	equence 40,	equence 38,	equence 36,	equence 34, equence 35,	equence 33,	equence 153	equence 48,	equence 46,	equence 45,	equence 44	equence 42,	equence 41,	equence 40,	equence 39,	equence 37,	equence 36,	equence 34,	equence 33,	equence 18,	equence 20,	equence 381	equence 381	equence 1,	equence 17,	equence 122	equence 11	equence 136	equence 254	equence 136	equence 129	equence 129	equence 129	equence 129	equence 28,	equence 25,	equence 62,	equence 62	equence 62	edience 28	ednesice 22'	equence 17,	equence 3,	equence 169	equence 15	equence 169	equence 15
Appl Appl Appl Appl Appl Appl	ŢŢŢŢ	֧֧֧֧֓֞֞֓֓֓֓֓֓֓֓֓֓֓֓֓֓֟֝֟ ֖֓֞֓֞֓֓֞֓֞֓֓֞	֧֧֖֓֞֝֓֓֓֞֝֓֓֓֓֓֓֓֓֓֓֟ ֓֞֞֞֞֞֞֞֞֞֓֓֓֓֞֞֞֞֞֓֓֞֞֞֞֞֞֞֞֞֞	ָּרָבְי <sup>ָ</sup>	ָב <u>ַי</u> יבַי	ğΩ	֧֧֧֧֧֓֞֞֟֟֝ <del>֚</del> ֓֞֓֞֓֞֓֞֓֓֞֓֞֓֞֓֞֓֞֓֞֞֞֞֞֓֞֓֞֞֞֞֞֓֞֞֞֞֓֞֞֞֞	gg	, L	ָלָי <u>ָר</u>	ŢĠ	Ďľ	ָּהָילָם ביים	ρŢ	Ţ	ָרָי <u>ָּ</u>	ָלָקי בַּי	֖֖֖֚֭֭֓֞֟֓֞֓֞֟֟֓֓֓֓֟֓֓֓֟֟	ָּהָ <u></u>	ğ	ים די	ָבָּי <sup>ָ</sup>	dđ	D F	1.1	Ď	יטי יטי	g g	đđ	dđ	0 1	ָלָי לָלֶי ס'יס	ďď	gg	ָּק ק <u>ַ</u>	ĎĎ	ָבָּק	Ď.	ָּבְיּלְ בּיִבְ	Ď,	3.7	ָּבְייָב <u>י</u>	ָּבְי <u>ָּ</u>	1	gg	gg	đđ	đđ
																																			-		_											
ա ա ա ա ա ա																																																
99999		- 00 00 0	∞ ∞ ⋅	77,	77	77	373	1 7	70	ש ע	σ.	6	σσ	) O	0	σι σ	n UT	· UT	356 357	ıon	υri	лυ	S	rs v	44	4	4.	44	- 4	4	Α,	40	w	w	ωı	u u	·ω	w	wι	w	0 b	JΚ	JΛ	3 N	N	N	N	321
••••	4700	882	80 81	78 79	76	74 75	73	71	70	6 B	67	66	6.0	2 23	62	61 6	59	58	57	155	5.4	7 C	51	50	4.8	47	46	44	43	42	41	40	. ω Θ	37	36	4.1	33	32	31	30	9 0	) K	3 6	3 10	24	23	22	21
9909888 55555555555555555555555555555555	865 85 4 1 5 5 5 2 .	83 5 2.	80 5 2. 81 5 2.	78 5 2	76 5 2.	74 5 2. 75 5 2.	73 5 2.	71 5 2.	70 5 2.	68 5 2.	67 5 2.	66 5 2.	65 5 2.	5 2.	62 5 2.	61 5 2.	59	58 5 2.	57 5 2.	55 5 2.	54 5 2.	5 C	51 5 2.	50 5 2.	148 5 2.	47 5 2.	46 5 2.	AT 4.	43 5 2.	42 5 2.	41 5 2.	40 5 2.	38	37 5 2.	36 5 2.	, w	33 5 2.	32 5 2.	31 5 2.	30 5 2.	л и	, c	, v	25	5 2.	23 5 2.	22 5 2.	21 5 2.
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 8 6 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	83 5 2.3 35	80 5 2.3 35	79 5 2.3 35	76 5 2.3 35	74 5 2.3 35 75 5 2.3 35	73 5 2.3 35	71 5 2.3 35	70 5 2.3 35	68 5 2.3 35	67 5 2.3 35	66 5 2.3 35	65 5 2.3 35	5 2.3 35	62 5 2.3 35	61 5 2.3 35	59 5 2.3 35	58 5 2.3 35	57 5 2.3 35	55 5 2.3 35	54 5 2.3 35	л» л » » » » » » » » » » » » » » » » »	51 5 2.3 35	50 5 2.3 35	48 5 2.3 35	47 5 2.3 35	46 5 2.3 35	44 b 2.5 35	43 5 2.3 35	42 5 2.3 35	41 5 2.3 35	40 5 2.3 35	38 5 2 3 35	37 5 2.3 35	36 5 2.3 35	л х х х х х х х х х х х х х х х х х х х	33 5 2.3 35	32 5 2.3 35	31 5 2.3 35	30 5 2.3 35	70 77 77 77 77 77 77 77 77 77 77 77 77 7	20 5 2.5 35	23 6 2.4 45	20 20 20 20	5 2.3 35	23 5 2.3 35	22 5 2.3 35	21 5 2.3 35
88 5 2.3 35 3 US-08-471-913A-1 89 5 2.3 35 3 US-08-471-913A-3 90 5 2.3 35 3 US-08-471-913A-3 91 5 2.3 35 3 US-08-471-913A-3 92 5 2.3 35 3 US-08-471-913A-3 92 5 2.3 35 3 US-08-471-913A-3	84 5 2.3 35 3 US-08-485-551A-46 85 5 2.3 35 3 US-08-485-551A-47 86 5 2.3 35 3 US-08-485-551A-47	83 5 2.3 35 3 US-08-485-551A-4	80 5 2.3 35 3 US-08-485-551A-4 81 5 2.3 35 3 US-08-485-551A-4	78 5 2.3 35 3 US-08-485-551A-4	76 5 2.3 35 3 US-08-485-551A-3	74 5 2.3 35 3 US-08-485-551A-3 75 5 2.3 35 3 US-08-485-551A-3	73 5 2.3 35 3 US-08-485-551A-3	71 5 2.3 35 3 US-08-485-551A-3	70 5 2.3 35 3 US-08-4/3-8884-1	68	67 5 2.3 35 3 US-08-475-668A-4	66 5 2.3 35 3 US-08-475-668A-4	65 5 2.3 35 3 US-08-475-668A-4	63 5 2.3 35 3 US-08-475-668A-4	62 5 2.3 35 3 US-08-475-668A-4	61 5 2.3 35 3 US-08-475-668A-4	59 5 2.3 35 3 US-08-475-668A-3	58 5 2.3 35 3 US-08-475-668A-3	57 5 2.3 35 3 US-08-475-668A-3	55 5 2.3 35 3 US-08-475-668A-3	54 5 2.3 35 3 US-08-475-668A-3	5 2.3 35 3 US-08-475-668A-1	51 5 2.3 35 3 US-08-919-597-15	50 5 2.3 35 3 US-08-919-597-4	48 5 2.3 35 3 US-08-919-597-4	47 5 2.3 35 3 US-08-919-597-4	46 5 2.3 35 3 US-08-919-597-4	44	43 5 2.3 35 3 US-08-919-597-4	42 5 2.3 35 3 US-08-919-597-4	41 5 2.3 35 3 US-08-919-597-3	40 5 2.3 35 3 US-08-919-597-3	38 5 2.3 35 3 US-08-919-597-3	37 5 2.3 35 3 US-08-919-597-3	36 5 2.3 35 3 US-08-919-	36 5 2.3 35 3 US-08-919-597-1	33 5 2.3 35 3 US-08-484-223B-1	32 5 2.3 35 3 US-08-484-	31 5 2.3 35 3 US-08-484-223B-4	30 5 2.3 35 3 US-08-484-223B-4	29 5 21 15 1 IIS-08-484-223B-4	20 E 2 2 3E 2 US-08-484-223B-4	25	25 5 2.3 35 3 US-08-484-223B-4	24 5 2.3 35 3 US-08-484-223B-4	23 5 2.3 35 3 US-08-484-223B-3	22 5 2.3 35 3 US-08-484-223B-3	21 5 2.3 35 3 US-08-484-223B-3

/

464			1 TO 1 F	10	1 m 11	3 4 11	1 n	452	451	1 A A	۸.	447		٠.٨	444	443	442	441	440	439		J ii	777		ü			ü	sϊ	υï	JÉ	٠ i	N	. 427	Ñ	425	N	423	422	40.1	4 6	4 5	410	ز د	ا د	416	Ļ	-	413	$\mathbf{r}$	411	۳	409	0	0	406	0		<b>&gt;</b> C	402	<b>5</b>	401	400	399	398	397	396	) (L	) (J	0 0	נטנ	
<b>ரு</b> ரூ	របេ	י טו	ហហ	ທ	ហប	1 UT	տ	ហ	טי נ	лu	ח ט	יט י	· UT	ហ	ហ	σ	ъ	U	U	יטו	1 (	nψ	л	Jī	ഗ	U	U	ı	חנ	πţ	пų	л	υī	ഗ	ű	ហ	U	U	U	1 0	1 0	ח נ	л	лι	л	υ	υī	ហ	U	ທ	ហ	ú	v	U	v	ហ	U	U	n U	ח נ	лι	л	л	v	ហ	U	U	υ	ט ני	n (	л	
22.0																																																																								
335	лого	ı	տ տ	5	տ տ	וטו	U	տ	ທະເ	лυ	חט	יט ו	ı v	· U	ភ	ហ	5	G	·	יטו	1 (	пυ	л(	л	ഗ	U	·	1 0	1 (	n (	n (	л	UI	u	U.	u	U	·	ייי	10	1 0	יו	л	л	л,	u	٠,	vi	U1	u	u	u	Ų,	O.	U	U	0		10	л	,, (	,,,,	J1	UI	01	U	U			,, (	٠,	
8-474-349A-	-09-08	-09-082-2798-88	-09-082-279B-88 -09-082-279B-88	-09-082-279B-8E	-09-082-279B-88	-09-082-279B-86	-09-082-279B-54	-09-082-279B-20	-09-082-279B-20	-09-082-2/9B-20 -09-082-279B-20	-09-082-2/98-20	-09-082-279B-20	-09-082-279B-20	-09-082-279B-20	-09-082-279B-19	-09-082-279B-19	-09-082-279B-19	-09-082-2798-19	-09-082-279B-19	-09-082-279B-19	T-05/2-200-10	-09-002-279B-19	00 002 2708-10	-09-082-279B-19	-09-082-279B-19	-09-082-2798-18	-09-082-279B-EB	.09-082-2/9B-18	00 000 000 10	09-082-2768-18	00-001-1700-0	00-083-3768-7	-09-082-279B-39	-08-485-264A-1	-08-485-264A-4	-08-485-264A-4	-08-485-264A-4	-08-485-264A-4	- A 2 0 2 - 2 0 1 - 4 - 6 0 -	- APO 2 - COP CO	- APO - COP- OO.	00 400 0043	.09-485-3641-4	. OR - 485-2641-4	08-485-2644-	·08-485-264A-3	·08-485-264A-3	·08-485-264A-3	-08-485-264A-3	·08-485-264A-3	·08-485-264A-3	·08-485-264A-1	08-905-223-33	08-974-549A-3	08-974-549A-2	08-831-028-20	08-47	1.4-80	4.4	000	08-47	08-47	08-47	08-47	08-47	08-47	08-47	08-47	00-4/1-913A-3	00-471-0131-3	08-471-913A-	
Sequence 33, Appl Sequence 34, Appl	916	888	883	881	880	863	548	207	206	205	200	202	201	200	199	198	197	196	195	194		102	103	191	190	189	T 8 8	10/	9 6	700	8	70,	 	153	48,	47,	46,	45,	#		1 to	֝֞֞֞֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	4 7	200	9	ა 8	37,	36,	35 '	34,	ω u	18,	331	33,	27,	20,	153	4 0	4	47	7	ъ.	44	43,	42,	41,	40,	, 2	,	, מ	37.	
537	ស ស ស ស ស ស ស 4. ស ស	533	532	530	529	527	526	525	524	л СС	F 2 2 2 1	520	519	518	517	516	515	514	513	512	1 C	7 L C	510	509	508	507	500	1 0	n (	504	л (C	500	501	500	499	498	497	196	490	1 1	4	201	492	491	490	489	488	487	486	485	484	483	482	481	480	479	478	# * * *	4170	476	475	474	473	472	471	4.70	450	400	4 4 4	467	466	
537 538 5	3 W W	33	32	30	29	27	26	25	24	22	3 K	20	19	18	17	16	15	14	1.6	12	, F	11	10	09	08	0.7	6	10	n .	2 6	2 6	3	01	00	99	98	97	9 6	9 4					91	90	89	88	87	96			83	82	8	80	79	8/8	1 7	7 6	7,7	75	74	73	72								
387	55 S.	33 5 2.	32 5 2.	30 5 2.	29 5 2.	27	26 5 2.	25 5 2.	24 5 2.	22 22	50 L	20 5 2.	19 5 2.	18 5 2.	17 5 2.	16 5 2.	15 5 2.	14 5 2.	10	12 2	10	J	10	09 5 2.	08 5 2.	07	06	10	n (	л (	л ( 	л л	01 5 2.	00 5 2.	99 5 2.	98 5 2.	97	95		n (	nι	n (	וית	91 °	90 5	89 5	88 5	87 5	86 5	5 2.	5 2.	83 5 2.	82	8 L	80 5 2.	79	780	10.	73 G	J 7 7	75 5	74 5 2.	73 5 2.	72 5 2.	55		ı u	1 U	٦ ر ۱ د	л	ъ	
37 5 2.3 35 35 35	34 5 2.3 35 36 8 2.3 35	33 5 2.3 35	31 5 2.3 35 32 5 2.3 35	30 5 2.3 35	29 5 2.3 35	27 5 2.3 35	26 5 2.3 35	25 5 2.3 35	24 5 2.3 35	22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	33 5 3.1 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7 3.7	20 5 2.4 35	19 5 2.3 35	18 5 2.3 35	17 5 2.3 35	16 5 2.3 35	15 5 2.3 35	14 5 2.3 . 35	15 2.5 55	12 5 2.3 35		11 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10 5 2 3 35	09 5 2.3 35	08 5 2.3 35	07 5 2.3 35	06 0 6.5 35	000000000000000000000000000000000000000	On	04 TO 11.0	ייי אייי אייי	מי אור	01 5 2.3 35	00 5 2.3 35	99 5 2.3 35	98 5 2.3 35	5 2.3 35	90 0 0.0	2000	3 10 10 10 10 10 10 10 10 10 10 10 10 10	חונ שני נונ	٦ ( ن د	ייני	91 5 2.3	90 5 2.3	89 5 2.3	88 5 2.3 35	87 5 2.3 35	86 5 2.3 35	5 2.3 35	5 2.3 35	83 5 2.3 35	82 5 2.3 35	8L 5 2.3 35	80 5 2.3 35	79 5 2.3 35	78 5 2.3 35	10 000	73 77 77 77 77 77 77 77 77 77 77 77 77 7	76 5 2 3 35	75 5 2.3 35	74 5 2.3 35	73 5 2.3 35	72 5 2.3 35	5 2.3 35	5 6.4	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ט זי	3 6 6	ווג כי	5 2.3 35	
37 5 2.3 35 4 US-09-315-304B-9138 5 2.3 35 4 US-08-722-015A-25	34 5 2.3 35 4 US-09-35 5 2.3 35 4 US-09-36 1	33 5 2.3 35 4 US-09-	31 5 2.3 35 4 US-09- 32 5 2.3 35 4 US-09-	30 5 2.3 35 4 US-09	29 5 2.3 35 4 US-09-	27 5 2.3 35 4 US-09-315-304B-20	26 5 2.3 35 4 US-09-315-304B-20	25 5 2.3 35 4 US-09-	24 5 2.3 35 4 US-09-315-304B-20	22 5 2 3 35 4 US-09-315-304B-20	21	20 5 2.3 35 4 US-09-315-304B-20	19 5 2.3 35 4 US-09-315-304B-15	18 5 2.3 35 4 US-09-315-304B-19	17 5 2.3 35 4 US-09-315-304B-19	16 5 2.3 35 4 US-09-315-304B-19	15 5 2.3 35 4 US-09-315-304B-19	14 5 2.3 35 4 US-09-315-304B-15	15 5 2.5 55 4 CS+CV-315-304B-15	12 5 2.3 35 4 U5-U9-315-304B-13	10 F 00 00 1 10 00 10 10 10 10 10 10 10 10 1	11 5 23 35 4 Hg-09-315-304B-19	10 5 2 3 35 4 IIS-09-315-304B-19	09 5 2.3 35 4 US-09-315-304B-18	08 5 2.3 35 4 US-09-315-304B-18	07 5 2.3 35 4 05-09-315-3048-16	06 5 6.3 35 4 05-09-315-3045-10	00 0 6.0 00 4 00 07 010 0040 00	or	04 E 23 3E 4 IIS-09-	-60-511 7 St C 2	02 5 23 35 4 115-08-	01 5 2.3 35 4 US-08-	00 5 2.3 35 4 US-08-	99 5 2.3 35 4 US-08-	98 5 2.3 35 4 US-08-	97 5 2.3 35 4 05-08-	96 0 2.3 31 4 00-00-		1	n 3 3 3 7 4 66 66	1 2 3 3 A 10 00	5 2 3 35 4 IIS-08-	91 5 2.3 35 4 IIS=08-	90 5 2.3 35 4 US-08-	89 5 2.3 35 4 US-08-	88 5 2.3 35 4 US-08-	87 5 2.3 35 4 US-08-	86 5 2.3 35 4 US-08-	5 2.3 35 4 US-08-	5 2.3 35 4 US-08-	83 5 2.3 35 4 US-U8-	82 5 2.3 35 4 US-08-	81 5 2.3 35 4 08-08-	80 5 2.3 35 4 05-08-	79 5 2.3 35 4 US-08-	78 5 2.3 35 4 05-08-		77 5 3 3 35 4 10 00	76 5 2.3 35 4 IIS-08-	75 5 2.3 35 4 US-08-474-349A-4	74 5 2.3 35 4 US-08-474-349A-4	73 5 2.3 35 4 US-08-474-349A-4	72 5 2.3 35 4 US-08-474-349A-4	5 2.3 35 4 US-08-474-349A-4	5 2.3 35 4 US-U8-4/4-349A-3	0 0 0 0 4 00 0 4 1 1 1 1 1 1 1 1 1 1 1 1	5 2.3 3F / TIC OR ATA 34.03-32	C - 40 C - 47 A - 20 C - 47 A - 20 C - 47 A - 20 C - 20 A	5 2 3 35 4 IIS-08-474-349A-3	5 2.3 35 4 US-08-474-349A-3	

	598 598 600 602	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	55665 5665 5666 5666 5666	00000000000000000000000000000000000000	, W W W W W W W W W W W W W W W W W W W	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
ហហហហហហហហ	ហាហហហហហ	ហហហហហហហ	ហេហហហហហហហ	ហេហហហហហហហហហហហហហហហហ	<sup>,</sup> ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ	ហហហហហហហហហហហ
77 78 78 78 78 79 83	76 76 76	0 0 0 0 0 0 0 4 N N N N 0 6 V				<b></b>
5-223-47 5-223-47 7-123BA-6 7-123BA-3 5-165A-3 5-165A-5 7-811-47 7-811-47	US-08-385-590A-20 US-09-021-520-20 US-09-367-953B-84 US-09-149-476-579 US-08-469-537A-38 US-08-469-537A-39	US-08-428-091-5 US-08-137-800-46 US-08-477-383-46 US-08-487-174-46 US-08-480-750-46 US-08-480-750-10 US-08-450-360-10	US-08-485-551A-101 US-08-4871-913A-101 US-08-4872-264A-101 US-08-474-349A-101 US-08-255-208A-35 US-08-255-208A-35 US-08-630-915A-209 US-07-662-005A-14 US-09-295-996B-4	US-09-149-476-364 US-09-177-249-167 US-09-257-179-44 US-07-752-101A-16 US-08-245-511-45 US-08-245-511-45 US-08-360-107A-90 US-08-360-107A-91 US-08-360-107A-111 US-08-380-107A-111 US-08-380-107A-111 US-08-380-107A-111 US-08-380-107A-111	US-08-569-959-50 US-08-255-208A-18 US-08-255-208A-18 US-08-255-208A-18 US-08-258-21 US-08-988-856B-21 US-08-118-270-305 US-08-118-270-306 US-08-598-873-23 US-08-598-873-23 US-08-598-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-988-856B-16 US-08-118-270-307 US-08-118-270-307 US-08-118-270-307 US-08-118-270-309 US-08-118-270-309 US-08-118-270-309 US-08-118-270-309	US-08-487-890A-16 US-08-478-435-16 US-08-337-483-16 US-08-478-373-16 US-08-474-671-16 US-08-897-438-16 US-08-897-438-16 US-08-897-438-16 US-08-637-654-16 US-08-649-518-16 US-09-169-476-400 US-09-169-476-400 US-09-169-476-400 US-09-169-476-400 US-09-169-568E-128 US-08-306-871-50
Sequence 40, Appl Sequence 474, Appl Sequence 6, Appli Sequence 6, Appli Sequence 37, Appl Sequence 503, Appl Sequence 2, Appli Sequence 47, Appl Sequence 67, Appl	Sequence 20 Sequence 20 Sequence 84 Sequence 57 Sequence 39 Sequence 39 Sequence 40	7 4 4 4 4 1 7 6 6 6 6 C C	41235100	110000000000000000000000000000000000000	3331333162233312215 350000006, 330061, 80	212111111
676 678 679 680 681 682 683	670 671 672 673 674 675	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	653 652 662	644 6644 665 665 665 655 655 655 655 655	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	~~~~~~~~~~
676 677 679 680 681 682 5	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	66655555555555555555555555555555555555	644 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		111 114 115 116 117 118 119 119 119 119 119 119 119 119 119
776 777 779 880 881 883 883 883 883 883 883	772777777777777777777777777777777777777	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	55 55 55 55 55 55 55 55 55 55 55 55 55	55555555555555555555555555555555555555	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	113 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5
776 777 78 78 78 78 78 78 78 78 78 78 78 78	772 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	55 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	113 5 5 2 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
776 5 2.3 119 4 777 5 2.3 120 2 779 5 2.3 120 2 779 5 2.3 120 2 779 5 2.3 120 2 80 5 2.3 120 3 81 5 2.3 122 4 82 5 2.3 123 1 83 5 2.3 123 1	700 5 2.3 117 4 710 5 2.3 117 5 72 5 2.3 118 3 73 5 2.3 118 3 74 5 2.3 118 4 75 7 2 3 119 4	63 5 2.3 114 4 664 5 2.3 117 1 65 5 2.3 117 1 66 5 2.3 117 1 66 6 5 2.3 117 1 6 6 6 6 2.3 117 2 6 6 6 6 2.3 117 2 6 6 6 6 6 2.3 117 2 6 6 6 6 6 7 2.3 117 2 6 6 6 6 6 7 2.3 117 2 6 6 6 6 6 7 2.3 117 2 6 6 6 6 6 7 2.3 117 2 6 6 6 6 6 7 2.3 117 2 6 6 6 6 7 2.3 117 2 6 6 6 6 7 2.3 117 2 6 6 6 6 7 2.3 117 2 6 6 6 6 7 2.3 117 2 6 6 6 6 7 2.3 117 2 6 6 6 6 7 2 3 117 2 6 6 6 7 2 3 117 2 6 6 6 6 7 2 2 3 117 2 6 6 6 6 7 2 3 117 2 6 6 6 7 2 2 3 117 2 6 6 6 7 2 2 3 117 2 6 7 2 2 2 2 3 117 2 6 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	55 5 2.3 107 4 56 5 2.3 109 1 57 5 2.3 109 4 58 5 2.3 112 4 58 5 2.3 113 1 59 5 2.3 113 2 60 5 2.3 113 2 61 5 2.3 113 4 62 5 2.3 114 4	442 5 2.3 104 1 443 5 2.3 104 3 445 5 2.3 104 4 446 5 2.3 104 4 447 5 2.3 104 4 448 5 2.3 106 1 449 5 2.3 106 2 50 2.3 106 2 51 5 2.3 106 3 52 2.3 106 4 53 2.3 106 4	225 4 5 5 2 2 3 9 6 5 4 2 2 3 9 8 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 9 2 2 3 2 3	12 5 2.3 88 4 13 5 2.3 89 1 14 5 2.3 90 1 15 5 2.3 90 4 17 5 2.3 91 4 17 5 2.3 92 6 20 5 2.3 92 4 22 5 2.3 93 4 23 94 4
776 5 2.3 119 4 US-09 777 5 2.3 120 1 US-08 779 5 2.3 120 2 US-08 779 5 2.3 120 2 US-08 80 5 2.3 120 3 US-09 81 5 2.3 122 4 US-09 82 5 2.3 123 1 US-09 83 5 2.3 123 1 US-09 84 5 2.3 123 1 US-08	70 5 2.3 117 4 US-09 71 5 2.3 117 5 PCT-U 72 5 2.3 118 3 US-09 73 5 2.3 118 4 US-09 74 5 2.3 118 4 US-09 75 5 2.3 119 4 US-09 76 5 2.3 119 4 US-09	63 5 2.3 114 4 US-09 64 5 2.3 117 1 US-07 65 5 2.3 117 1 US-07 66 5 2.3 117 1 US-07 67 5 2.3 117 1 US-08 68 5 2.3 117 2 US-08	55 5 2.3 107 4 US-08 56 5 2.3 109 1 US-08 57 5 2.3 109 4 US-08 58 5 2.3 112 4 US-08 59 5 2.3 113 1 US-08 60 5 2.3 113 2 US-08 60 5 2.3 113 2 US-08 61 5 2.3 114 4 US-09 62 5 2.3 114 4 US-09	42 5 2.3 104 1 US-08 43 5 2.3 104 1 US-08 44 5 2.3 104 3 US-08 45 5 2.3 104 4 US-09 46 5 2.3 104 5 PCT-U 48 5 2.3 106 2 US-08 50 5 2.3 106 2 US-08 51 5 2.3 106 2 US-08 52 2.3 106 3 US-09 53 5 2.3 106 4 US-09 54 5 2.3 106 4 US-09 55 2.3 106 4 US-09	25	12 5 2.3 88 4 US-09-21 13 5 2.3 89 1 US-08-20 14 5 2.3 89 3 US-08-21 15 5 2.3 90 1 US-08-93 16 5 2.3 90 4 US-08-93 17 5 2.3 90 4 US-09-22 18 5 2.3 91 4 US-09-22 19 5 2.3 91 4 US-08-93 20 5 2.3 93 4 US-08-93 20 5 2.3 93 4 US-08-93 21 5 2.3 93 4 US-08-82 22 5 2.3 94 4 US-09-23

750 751 752 753 754 755 756	745 746 747 748	741 742 743 744	737 738 739 740	4 0 0	3 2 2	000	J 7 0					- G- 1.										ω ισ	ρō	<b>ο δ</b>	
ហាហាហាហាហាហាហា	រហហហហហ •	ហហហហ	ហហហហ	ហហហ	ហហហ	ហេហ	<b>ภ</b> பா ப	ហេហ	ហហហ	ហហហ	ហហហ	ហហប	រាបាបា	ហហ	ທ ທ	ហេហ	տտւ	n UT U	л UT (	n on (	ហហ	ហហ	ហហ	<b>ரை</b> ர	л பு ப
168 168 169 169 169 169	0 0 0 0 0 0	0000	m w ~ 0	01 #4 #4	# 10 to	100	D ~ 0	, 0, 0,	w w w	10 10 10															
669-408B-580-031A-376-113-5 895-939-4 444-818-4 1188-820-4 1134-001C-725-459B-	US-08-448 US-08-955 US-08-858 US-09-452 US-09-006	US-09-149-476-4 US-08-448-438-5 US-08-448-438-6 US-08-448-438-7	US-09-173-300-6 US-09-134-001C- US-07-906-871-1 US-07-906-871-1	US-09-375- US-09-134- US-09-370-	US-09 52122 US-08	US-08	US-08-708-541A-3 US-08-883-086-3 US-08-606-143-24	US-08	US-08 08-09	80-SD 80-SD	US-09 US-07	09-09 08-09	US-09-615-192A-3 US-08-542-363-31 US-09-100-089-31	US-09-201-227A-6 US-09-201-227A-19	US-08-875-540-12 US-09-473-634-12	us-09	08-09 08-09	US-08	US-09-102-977-2	09-SD	US-08-455-550-10 US-09-485-316A-1	US-07	US-09	US-09	US-08.
, Appl 5, Appl , Appl , Appl 8, Appl 8, Appl , Appl 1, Appl						equence :	equence 3, equence 3, equence 24	equence 1, equence 28	equence 52 equence 12 equence 12	equence 2, equence 3, equence 4,	Sequence 2, Appli Sequence 3, Appli Sequence 1, Appli	equence 31	equence 38 equence 31 equence 31	equence 6,	equence 12 equence 12	equence 16	equence 4,	equence 38	equence 2,	equence 12	equence 10	equence 1, equence 2,	equence 85 equence 1,	equence 85	equence 4,
			,																						
823 824 827 828 830		8888	,				800 801			791 792 793	788 789	786 787	783 784 785	781 782	779 780	777 778 ·	775 776	773	771			765 766	763 764	761 762	758 759 760
ហហហហហហហហ	818 820 821 822 833 835 835 835 835	814 815 816 817 5	. 810 812 813	807 808 5	804 805 5	803	5 5 0	797 5 798 5	794 5 795 5 796 5	93 5	90	86	S 60 60 57 44 60 57 57 57	. 5 82 . 5	79 5 80 5	77 5 78 · 5	75	73 5	ຫ່ໜ່	769 5 770 5	767 5 768 5	5 5	63 5	5 5 5	ກັບກັບກ ວ ໝໍ &
	818 829 820 5 22 5 22 5 22	814 5 2 815 5 2 816 5 2	810 5 2 811 5 2 813 5 2	807 5 2 808 5 2	804 805 5 2 806 5 2	802 5 2	5 2 2	797 5 2 798 5 2	794 5 2 795 5 2 796 5 2	92 5 2. 93 5 2.	90 5 2	86 5 2.	85 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5 2 5	81 · 5 2. 82 · 5 2.	79 5 2. 80 5 2.	77 5 2. 78 5 2.	75 5 2.	73 5 2.	JI JI	769 5 770 5	767 5 768 5	5 5	63 5	5 5 5	ກັບກັບກ ວ ໝໍ &
5 2.3 191 5 2.3 193 5 2.3 193 5 2.3 193 5 2.3 194 5 2.3 194	818 5 2.3 190 819 5 2.3 191 820 5 2.3 191 821 5 2.3 191 822 5 2.3 191	814 5 2.3 189 815 5 2.3 189 816 5 2.3 189 817 5 2.3 189	810 5 2.3 187 811 5 2.3 188 812 5 2.3 189	807 5 2.3 183 808 5 2.3 185 809 5 2.3 186	805 5 2.3 182 805 5 2.3 182 806 5 2.3 183	802 5 2.3 182 803 5 2.3 182	5 2.3 182 5 2.3 182	797 5 2.3 180 798 5 2.3 180 700 5 2.3 180	794 5 2.3 180 795 5 2.3 180 796 5 2.3 180	91 5 2.3 179 92 5 2.3 179 93 5 2.3 179	88 5 2.3 179 89 5 2.3 179 90 5 2.3 179	86 5 2.3 179 87 5 2.3 179	83 5 2.3 178 84 5 2.3 178 85 5 2.3 178	81 · 5 2.3 178 82 5 2.3 178	79 5 2.3 177 80 5 2.3 178	77 5 2.3 177 78 5 2.3 177	75 5 2.3 176 76 5 2.3 177	73 5 2.3 176	5 2.3 175 5 2.3 176	769 5 2.3 175 770 5 2.3 175	767 5 2.3 173 768 5 2.3 174	65 5 2.3 173 66 5 2.3 173	63 5 2.3 172 64 5 2.3 172	61 5 2.3 171 62 5 2.3 171	5 2.3 5 2.3
ភាភាភាភាភាភាភាភាភាភាភាភាភាភាភាភាភាភាភា	818 5 2.3 190 1 US-08-393-985-25 819 5 2.3 191 1 US-07-885-689A-29 820 5 2.3 191 1 US-08-093-383-3 821 5 2.3 191 2 US-08-286-819A-21 822 5 2.3 191 3 US-08-980-357-21	814 5 2.3 189 3 US-08-8 815 5 2.3 189 3 US-08-4 816 5 2.3 189 4 US-09-3 817 5 2.3 189 5 PCT-US9	810 5 2.3 187 4 US-09-1 811 5 2.3 188 4 US-09-1 812 5 2.3 189 2 US-08-2 813 5 2.3 189 2 US-08-2	807 5 2.3 183 4 US-09-105-3433 808 5 2.3 185 6 5489533-4 809 5 2.3 186 4 US-09-475-3163	804 5 2.3 182 4 US-09-53 805 5 2.3 182 4 US-09-58 806 5 2.3 183 4 US-09-20	802 5 2.3 182 4 US-09-56	00 5 2.3 182 1 US-08-69	797 5 2.3 180 4 US-09-13 798 5 2.3 180 4 US-09-61	794 5 2.3 180 2 US-08-87 795 5 2.3 180 3 US-09-05 796 5 2.3 180 4 US-08-93	91 5 2.3 1/9 4 US-09-35 92 5 2.3 179 4 US-09-35 93 5 2.3 179 4 US-09-61	88 5 2.3 1/9 4 UK 89 5 2.3 179 4 UK 90 5 2.3 179 4 UK	86 5 2.3 179 4 US-09-17 87 5 2.3 179 4 US-09-17	83 5 2.3 178 4 US-09-08 84 5 2.3 178 4 US-09-31 85 5 2.3 178 4 US-09-13	81 · 5 2.3 178 3 US-09-12 82 5 2.3 178 4 US-08-76	79 5 2.3 177 4 US-09-37 80 5 2.3 178 2 US-08-93	77 5 2.3 177 4 US-09-08 78 5 2.3 177 4 US-09-37	75 5 2.3 176 4 US-09-52 76 5 2.3 177 2 US-08-85	74 5 2.3 176 2 US-08-92	5 2.3 175 4 US-09-37 5 2.3 176 1 US-08-41	769 5 2.3 175 4 US-08-97 770 5 2.3 175 4 US-08-97	767 5 2.3 173 4 US-09-70	65 5 2.3 173 4 US-09-35 66 5 2.3 173 4 US-08-93	63 5 2.3 172 4 US-09-134-00 64 5 2.3 172 4 US-09-704-13	61 5 2.3 171 4 US-09-134-001C-356 62 5 2.3 171 4 US-08-817-441-96	58 5 2.3 170 4 US-08-817-4 59 5 2.3 171 1 US-08-313-0 60 5 2.3 171 3 US-08-725-4

99999999999999999999999999999999999999	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ	ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ
<ul><li>4 a a a a a a a a a a a a a a a a a a a</li></ul>	
22222222222222222222222222222222222222	000000000000000000000000000000000000000
US-08-718-270A-23 US-09-124-141-9 US-09-411-329C-5 US-09-411-329C-15 US-09-411-329C-15 US-09-411-329C-15 US-09-411-329C-15 US-09-411-329C-15 US-09-411-329C-15 US-09-411-329C-3 US-09-411-329C-3 US-09-08-531-525-3 US-08-718-712-8 US-08-718-729A-31 US-09-016-649-2 US-08-718-711-8 US-09-07-870-029-2 US-08-818-111-8 US-09-07-8-31-15-8 US-09-07-8-31-15-15 US-09-07-8-31-15-15 US-09-07-8-31-15-15 US-09-07-8-31-15-15 US-09-07-8-31-15-15 US-08-718-270A-15 US-08-718-270A-16 US-08-718-270A-16 US-08-718-270A-16 US-08-718-270A-16 US-08-718-270A-16 US-09-07-47-370-6 US-09-07-47-370-6 US-09-07-39-913-6 US-09-39-913-6 US-09-411-578-1	95
sequence 23, Appli sequence 5, Appli sequence 5, Appli sequence 3, Appli sequence 3, Appli sequence 3, Appli sequence 3, Appli sequence 32, Appli sequence 32, Appli sequence 32, Appli sequence 2, Appli sequence 31, Appli sequence 15, Appli sequence 17, Appli sequence 17, Appli sequence 17, Appli sequence 16, Appli sequence 17, Appli sequence 16, Appli sequence 16, Appli sequence 17, Appli sequence 16, Appli sequence 16, Appli sequence 17, Appli sequence 16, Appli sequence 18, Appli sequence 19, Appli sequence 11, Appli sequence 11, Appli sequence 12, Appli sequence 13, Appli sequence 16, Appli sequence 22, Appli sequence 23, Appli sequence 24, Appli sequence 24, Appli sequence 25, Appli sequence 25, Appli sequence 26, Appli seque	
927 927 927 927 927 927 927 927 927 927	000011111111111000000
ហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហា	ហហហហហហហហហហហហហហហហហហហហហ
223 223 223 223 223 223 233 233 233 233	2118 2219 22119 2221 2221 2222 2222 2223 2223
4 US-08-944-483-35 4 US-09-134-001C-54 4 US-09-134-001C-54 4 US-09-134-001C-54 4 US-09-134-001C-54 4 US-09-134-001C-54 4 US-09-132-145-99 4 US-09-182-145-99 4 US-09-182-145-97 4 US-09-182-145-97 4 US-09-182-145-97 4 US-09-621-625A-30 4 US-09-621-625A-32 4 US-09-621-625A-32 4 US-09-182-145-95 6 US-08-044-621D-24 6 US-09-182-145-95 7 US-09-182-145-95 8 US-09-182-145-93 9 US-09-182-145-93 9 US-09-182-145-93 1 US-09-182-145-93 2 US-08-46-511-014A-3 3 US-09-182-145-93 3 US-09-182-145-93 3 US-09-182-145-93 4 US-09-182-145-93	
483-35 0010-4562 0010-4562 00110-4569 00110-5495 145-99 145-99 145-99 145-99 145-97 625A-32 2360-2 145-97 625A-32 2423-2 145-96 621D-24 145-97 145-94 145-94 145-93 145-96 145-9	847C-3 -978-2 -953A-3 -953A-3 -948A-27 -947A-27 -947A-29

```
APPLICANT: Fuchs, Renate
APPLICANT: Motz, Manfred
APPLICANT: Motz, Manfred
APPLICANT: Milske, Bettina
APPLICANT: Wilske, Bettina
APPLICANT: Wilske, Bettina
APPLICANT: Wilske, Bettina
APPLICANT: Wilske, Bettina
TITLE OF INVENTION: Active proteins from Borrelia
TITLE OF INVENTION: Durgdorferi
FILE REFERENCE: 738.001US2
CURRENT FILING DATE: 1998-11-19
EARLIER APPLICATION NUMBER: US 09/209,603
EARLIER APPLICATION NUMBER: US 07/862,535
EARLIER APPLICATION NUMBER: US 07/862,535
EARLIER APPLICATION NUMBER: WO PCT/EP90/02282
EARLIER APPLICATION NUMBER: DE 239 42 728.5
EARLIER FILING DATE: 1990-12-21
EARLIER FILING DATE: 1990-12-21
EARLIER FILING DATE: 1990-12-21
EARLIER FILING DATE: 1990-06-13
EARLIER FILING DATE: 1990-06-13
RESULT 2
US-08-235-836C-32
                                                                 밁
                                                                                               á
                                                                                                                                                                                                   ; TYPE: PRT
; ORGANISM: Borrelia burgdorferi
US-09-196-293-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 1
US-09-196-293-15
                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 16
SOFTWARE: FastSEQ for Wir
SEQ ID NO 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                 Matches
                                                                                                                                                 Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           977
9778
979
980
980
981
988
988
988
998
999
1000
                                                                                                                                                                                                                                                     ENGTH: 209
                                                                 155
                                                                                                 39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        e 15, A. ...
No. 6183755
                                                                 AKEAILK 161
                                                                                                                                7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           សហសហសហសហសហសហសហសហសហសហសហសហសហស
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/09196293
                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                     for Windows Version
                                                                                                                                                 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-182-145-88
US-09-182-145-87
US-09-182-145-87
US-09-182-145-85
US-08-858-207A-33
US-09-182-145-85
US-08-463-911-7
US-08-463-911-7
US-08-9140-804-3
US-09-182-145-84
US-09-182-145-83
US-09-182-145-84
US-09-182-145-84
                                                                                                                                b; Score 7; DB 4
b; Pred. No. 19;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALIGNMENTS
                                                                                                                                                 DB 4;
                                                                                                                                                                 Length 209;
                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 88, Appl
Sequence 86, Appl
Sequence 86, Appl
Sequence 338, App
Sequence 21, Appl
Sequence 21, Appl
Sequence 21, Appl
Sequence 21, Appl
Sequence 20, Appl
Sequence 20, Appl
Sequence 20, Appl
Sequence 20, Appl
Sequence 21, Appl
Sequence 22, Appl
Sequence 23, Appl
Sequence 24, Appl
Sequence 26, Appl
Sequence 27, Appl
Sequence 28, Appl
Sequence 29, Appl
Sequence 30, Appl
Sequence 31, Appl
                                                                                                                                0
                                                                                                                                 Gaps
                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
```

```
US-08-235-836C-32
                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-158-353-3
                                                                                                                                                                                                                                                                                                                                                                             Sequence 3, Application US/08158353 Patent No. 5620862 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 32, Application US/08235836C Patent No. 6248562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA:
APPLICATION UMMBER: US/08/235,836C
FILING DATE: 29-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION OF ASSETTION DATA:
APPLICATION NUMBER: US 08/148,191
FILING DATE: 01-11-93
ATTORNEY/AGENT INFORMATION:
NAME: BOGOSIAN, MAZGAZEC C.
REGISTRATION NUMBER: 25,324
REFERENCE/DOCKET NUMBER: 25,324
REFERENCE/DOCKET NUMBER: BNL93-28A
TELECHONE: (516) 282-7338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: Dunn, John J.
APPLICANT: Luft, Benjamin J.
APPLICANT: Luft, Benjamin J.
TITLE OF INVENTION: No. 6248562el Chimeric Proteins Comprising
TITLE OF INVENTION: Borrelia Polypeptides and Uses Therefor
NUMBER OF SEQUENCES: 144
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (516) 282-73:
TELEPAX: (516) 282-3729
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 209 amino acids
ZIP: 02173
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PATENTIN Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Flopy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
CORRESTING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                             APPLICANT: Padula, Steven J.
TITLE OF INVENTION: Methods
TITLE OF INVENTION: Disease
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 209 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STATE: N
                                                                                                                               STATE: MA
COUNTRY: US
ZIP: 02173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      154 AKEAILK 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Brookhaven National Laboratory
                                                                                                                                                                                               STREET: Two Mil:
CITY: Lexington
                                                                                                                                                                                                                        ADDRESSEE: Hamilton, Brook, Smith & Reynolds, STREET: Two Militia Drive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     : Upton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11973
                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.2%; Score 7; DB ilarity 100.0%; Pred. No. 19 Conservative 0; Mismatches
                      Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US/08/235,836C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US 08/148,191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BNL93-28A
                                                                                                                                                                                                                                                                                                                                    for Diagnosing Early Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 209;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
```

APPLICATION NUMBER: US/08/158,353

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; TOPOLOGY: linear; MOLECULE TYPE: protein US-08-158-353-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-209-603E-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 15, Application US/08209603E Patent No. 6248538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match 3.2%; Score 7; DB: Best Local Similarity 100.0%; Pred. No. 19; Matches 7; Conservative 0; Mismatches
                                                      PRIOR APPLICATION DATA:

APPLICATION NUMBER: PCT/EP90/(
FILING DATE: 21-DEC-1990

APPLICATION NUMBER: US 07/862,

APPLICATION NUMBER: US 07/862,

APPLICATION NUMBER: US 07/862,

APPLICATION NUMBER: US 07/862,

APPLICATION NUMBER: 27, 284

REGISTRATION NUMBER: LKR-

TELECOMMUNICATION INFORMATION:

TELEPHONE: (212) 697-3355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Patent No.
                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5" FLOPPY DISC
MEDIUM TYPE: 3.5" FLOPPY DISC
COMPUTER: AT&T - IBM COMPATIBLE
OPERATING SYSTEM: MS-DOS Version 6.2
SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/08/209,603E
FILING DATE: 10-MAR-1994
TELEFAX: (212) 557-5635 INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
APPLICANT: FUCHS, RENATE
APPLICANT: WILSKE, BETTINA
APPLICANT: PREAC-MURSIC, VE
APPLICANT: MOTZ, MANFRED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 617-861-9540 INFORMATION FOR SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Carroll, Alice O.
REGISTRATION NUMBER: 33,542
REFERENCE/DOCKET NUMBER: UCT93-05
TELECOMMUNICATION INFORMATION:
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: IMMUNOLOGICALLY ACTIVE PRITITLE OF INVENTION: FROM BORRELIA BURGDORFERI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155 AKEAILK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STREET: 99 FALL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           H: 210 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      10016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 E: BROOKS HAIDT HAFFNER & DELAHUNTY 99 PARK AVENUE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOUTSCHECK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               617-861-6240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IMMUNOLOGICALLY ACTIVE PROTEINS
                                                                                                                                                                                                  US 07/862,535
                                                                                                                                                                                                                                          PCT/EP90/02282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ERWIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERA
                                                                                                    LKR-9217-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
TOPOLOGY: linear; MOLECULE TYPE: protein US-08-235-836C-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-235-836C-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; IDENTIFICATION METHOD: ; PUBLICATION INFORMATION: US-08-209-603E-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local Similarity
Matches 7; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent No. 6248562
GENERAL INFORMATION:
Query Match 3.2%; Score 7; DB Best Local Similarity 100.0%; Pred. No. 19 Matches 7; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 30,
                                                                                                                                           TELEFAX: (516) 282-372
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                    CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US 08/
FILING DATE: 01-11-93
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FRAGMENT TYPE: N/A
ORIGINAL SOURCE:
ORGANISM: B. BURGDORFERI
IMMEDIATE SOURCE:
LIBRARY: DSM 5662
                                                                                                                                                                                                                                                                                                                                                SUFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/235,836C
FILING DATE: 29-APR-1994
CLASCEPTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                         NAME: Bogosian, margaret C.
REGISTRATION NUMBER: 25,324
REFERENCE/DOCKET NUMBER: BN
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DESCRIPTION: PROTEIN HYPOTHETICAL: N/A ANTI-SENSE: N/A FRAGMENT TYPE: N/A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Dunn, John J.

APPLICANT: Luft, Benjamin J.

TITLE OF INVENTION: No. 6248562el Chimeric Proteins Comprising
TITLE OF INVENTION: Borrelia Polypeptides and Uses Therefor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                POSITION IN GENOME:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    155 AKEAILK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STREET:
                                                                                                                              LENGTH:
                                                                                                                                                                           TELEPHONE: (516)
TELEFAX: (516) 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Brookhaven National Laboratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Upton
                                                                                                             amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ΥN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                        E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LINEAR
                                                                                                                                                                             282-3729
                                                                                                                                                                                            282-7338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.2%; Score 7; DB (
100.0%; Pred. No. 19)
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                N/A
                                                                                                                                                                                                                                                                                                           US 08/148,191
                                                                                                                                                            30:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 amino acid analysis
N/A
                                                                                                                                                                                                                            BNL93-28A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 4;
o. 19;
                               DB 4;
                               Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

٥,

Indels

0,

Gaps

음 성

AKEAILK 161

39 AKEAILK 45

```
Sequence 39, Application US/09370838

Patent No. 6444425

GENERAL INFORMATION:

APPLICANT: Reed, Steven G.

APPLICANT: Lodes, Michael J.

APPLICANT: Mohamath, Roadoh

APPLICANT: Mohamath, Roadoh

TITLE OF INVENTION: COMPOUNDS FOR THERAPY AND DIAGNOSIS OF TITLE OF INVENTION: LUNG CANCER AND METHODS FOR THEIR USE

FILE REFERENCE: 210121.475C1

CURRENT APPLICATION NUMBER: US/09/370,838

CURRENT FILING DATE: 1999-08-09

EARLIER APPLICATION NUMBER: US/09/285,323

EARLIER APPLICATION NUMBER: US/09/285,323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: 210121.475C1
CURRENT APPLICATION NUMBER: US/09/370,838
CURRENT FILING DATE: 1999-08-09
EARLIER APPLICATION NUMBER: US 09/285,323
EARLIER FILING DATE: 1999-04-02
NUMBER OF SEQ ID NOS: 289
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 37
LENGTH: 238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
RESULT 8
US-09-370-838-42
                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: PRT; ORGANISM: Homo sapien US-09-370-838-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-370-838-37
                                                                           밁
                                                                                                                                                                                                                            US-09-370-838-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-370-838-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Mohamath, Roadoh
APPLICANT: Mohamath, Roadoh
APPLICANT: Secrist, Heather
TITLE OF INVENTION: COMPOUNDS FOR THERAPY AND DIAGNOSIS OF
TITLE OF INVENTION: LUNG CANCER AND METHODS FOR THEIR USE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 37, Application US/09370838 Patent No. 6444425
                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                            NUMBER OF SEQ ID NOS: 289
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 39
LENGTH: 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                  Matches
                                                                                                                                                                                                                                    TYPE: PRT
ORGANISM: Homo sapien
                                                                                                            170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity nes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16 LNSGSVL 22
                                                                         30
                                                                         LNSGSVL 36
                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.2%;
                                                                                                                                                3.2%; Score 7; DB ...
100.0%; Pred. No. 22.
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 4
), 22;
                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 238;
                                                                                                                                                0
                                                                                                                                                                                     Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                  Indels
                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
```

```
APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Mohamath, Roadoh
APPLICANT: Secrist; Heather
TITLE OF INVENTION: COMPOUNDS FOR THERAPY AND DIAGNOSIS OF
TITLE OF INVENTION: LUNG CANCER AND METHODS FOR THEIR USE
FILE REFERENCE: 210121.475C1
CURRENT APPLICATION NUMBER: US/09/370,838
CURRENT APPLICATION NUMBER: US/09/285,323
EARLIER APPLICATION NUMBER: US/09/285,323
EARLIER FILING DATE: 1999-04-02
NUMBER OF SEQ ID NOS: 289
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 42
LENGTH: 243
TYPE: PRT
ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
RESULT 10
US-09-370-838-46
                                                                              밁
                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-370-838-43
                                                                                                                                                                                                                                        US-09-370-838-43
                                                                                                                                                                                                                                                     NUMBER OF SEQ ID NOS: 289
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 43
LENGTH: 244
TYPE: PRT
ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                      Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 42, Application US/09370838 Patent No. 6444425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 43,
                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Lodes, Michael J.
APPLICANT: Mohameth, Roaddh
APPLICANT: Secrist, Heather
TITLE OF INVENTION: COMPOUNDS FOR THERAPY AND DIAGNOSIS OF
TITLE OF INVENTION: LUNG CANCER AND METHODS FOR THEIR USE
FILE REFERENCE: 210121.475C1
CURRENT APPLICATION NUMBER: US/09/370,838
CURRENT FILING DATE: 1999-08-09
EARLIER APPLICATION NUMBER: US 09/285,323
EARLIER APPLICATION NUMBER: US 09/285,323
                                                                                                                   170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   170 LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21
                                                                              22 LNSGSVL 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6444425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/09370838
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             , 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.2%; Score 7;
100.0%; Pred. No.
ltive 0; Mismatc
                                                                                                                                                          3.2%; Score 7; DB '
100.0%; Pred. No. 22
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                               DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 4;
). 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 243;
                                                                                                                                                                                                 Length 244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                              0
                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

0

; Sequence 46, Application US/09370838 ; Patent No. 6444425

0

GENERAL INFORMATION:
APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Mohamath, Roadoh
APPLICANT: Secrist, Heather

```
밁
                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; LENGTH: 245
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-370-838-40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-09-370-838-40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-370-838-46
                                                              Patent No. 6270777
GENERAL INFORMATION:
APPLICANT: Dunn, John J.
APPLICANT: Luft, Benjamin J.
APPLICANT: Luft, Benjamin J.
TITLE OF INVENTION: No. 6248562el Chimeric Proteins Comprising
TITLE OF INVENTION: Borrelia Polypeptides and Uses Therefor
TITLE OF INVENTION: B144
                                                                                                                                                                                                        Patent No. 6248562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER APPLICATION NUMBER: US 09/285,323
EARLIER FILING DATE: 1999-04-02
NUMBER OF SEQ ID NOS: 289
SOFTWARE: PastSEQ for Windows Version 3.0
SEQ ID NO 40
LENGTH: 245
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity
Matches 7; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: FastSEQ for Windows Version 3.0 SEQ ID NO 46
                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 40,
                                                                                                                                                                                                                                                    -08-235-836C-107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Reed, Steven G.
APPLICANT: Lodes, Michael J.
APPLICANT: Mohamath, Roadoh
APPLICANT: Secrist, Heather
TITLE OF INVENTION: COMPOUNDS FOR THERAPY AND DIAGNOSIS OF
TITLE OF INVENTION: LUNG CANCER AND METHODS FOR THEIR USE
FILE REFERENCE: 210121,475C1
CURRENT APPLICATION NUMBER: US/09/370,838
CURRENT FILING DATE: 1999-08-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No. 6444425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CURRENT APPLICATION NUMBER: US/09/370,838
CURRENT FILING DATE: 1999-08-09
EARLIER APPLICATION NUMBER: US 09/285,323
EARLIER FILING DATE: 1999-04-02
NUMBER OF SEQ ID NOS: 289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE OF INVENTION: COMPOUNDS FOR THERAPY AND DIAGNOSIS O TITLE OF INVENTION: LUNG CANCER AND METHODS FOR THEIR USE FILE REFERENCE: 210121.475C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                            23 LNSGSVL 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       22 LNSGSVL 28
               CITY: Upton
STATE: NY
STATE: NY
COUNTRY: USA
                                                   ADDRESSEE: Brookhaven National Laboratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application US/09370838
                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.2%; Score 7;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%; Score 7;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                   DB 4;
o. 22;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 4;
5. 22;
                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 244;
                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
```

```
FILING LALL.

CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,191

FILING DATE: 01-11-93

ATTORNEY/AGENT INFORMATION:
NAME: Bogosian, Margaret C.
REGISTRATION NUMBER: 25,324

REGISTRATION NUMBER: BNL93-28A

TELECOMMUNICATION: 110FORMATION:
TELECOMMUNICATION 110FORMATION:
TELECOMMUNICATION 17082-3738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-08-235-836C-110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ) MOLECULE TYPE:
US-08-235-836C-107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent No. 6248562
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 110, Application US/08235836C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: (516) 282-3729 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Bogosian, Margaret C.
REGISTRATION NUMBER: 25,324
REFERENCE/DOCKET NUMBER: BN
TELECOMMUNICATION IMFORMATION:
TELEPHONE: (516) 282-7338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/148,191
FILING DATE: 01-11-9
ATTORNEY/AGENT INFORMATION:
NAME: Bogosian, Margaret C.
                                                                                                                                                                                                                               SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/235,836C
                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: LEM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ZIP: 11973
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Dunn, John J.
APPLICANT: Luft, Benjamin J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         411 AKEAILK 417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local Similarity 100 nes 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 29-APF CLASSIFICATION: 435
                                                                                                                                                                                                                APPLICATION NUMBER: FILING DATE: 29-API
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                     STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                        CITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ADDRESSEE: Brookhaven National Laboratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                                                                                                                                                                                                                                                                                                                                                                11973
                                                                                                                                                                                                                                                                                                                                                                                                                        Upton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            amino acid
                                                                                                                                                                                                                                                                                                                                                                                                     ¥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              466 amino acids
                                                                                                                                                                                                                                                                                                                                                                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            29-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No. 6248562el Chimeric Proteins Comprising
Borrelia Polypeptides and Uses Therefor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.2%; Score 7;
100.0%; Pred. No
tive 0; Misman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/08/235,836C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  107:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BNL93-28A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 red. No. 41;
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 466;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 14
US-08-235-836C-122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-235-836C-110
                RESULT 15
US-09-562-737-95
                                                                              밁
                                                                                                          á
                                                                                                                                                                                                       ; MOLECULE TYPE: protein US-08-235-836C-122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local Similarity 100. Matches 7; Conservative
Sequence 95,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 122, Application US/08235836C Patent No. 6248562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                         Matches
                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
APPLICANT: Dunn, John J.
APPLICANT: Luft, Benjami
                                                                                                                                                                                                                                                                                                   TELEFAX: (516) 282-3729 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08
FILING DATE: 01-11-93
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OPERATING SULL... COPERATION SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
US/08/235,836C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: No. 6248562el Chimeric Proteins TITLE OF INVENTION: No. 6248562el Chimeric Proteins NUMBER OF SEQUENCES: 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
LENGTH: 588 amino acid
                                                                                                                                                                                                                                                                                                                                NAME: Bogosian, Margaret C.
REGISTRATION NUMBER: 25,324
REFERENCE/DOCKET NUMBER: BNL93-28A
TELECOMMUNICATION INFORMATION:
TELEPHONE: (516) 282-7338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155 AKEAILK 161
                                                                              421
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US/0 FILING DATE: 29-APR-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COUNTRY:
                                                                                                          39 AKEAILK 45
                                                                                                                                         Local Similarity les 7; Conserv
                                                                                                                                                                                                                                      TYPE: amino acid TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE: Brookhaven National Laboratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     11973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Upton
: NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           amino acid
 Application US/09562737
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               466 amino acids
                                                                                                                                                                                                                                                                    588 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                           Conservative
                                                                                                                                   3.2%; Scc.
/ 100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.2%; Score 7; DB 4; 100.0%; Pred. No. 41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                              US 08/148,191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                         Score 7; pred. No
                                                                                                                                         Mismatches
                                                                                                                                                           ö.
                                                                                                                                                         DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 466
                                                                                                                                         0,
                                                                                                                                                                        Length 588;
                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Comprising
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                           0;
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OTHER INFORMATION:
OTHER INFORMATION:
US-09-562-737-95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-946-026-3
                                                           US-08-946-026-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 3, App.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Patent No. 6428967
Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Herz, Joachim
APPLICANT: Gotthardt, Michael
APPLICANT: Gotthardt, Michael
TITLE OF INVENTION: LDL Receptor Signaling Pathways
FILE REFERENCE: UTSW0708
FULNE REFERENCE: UTSW0708
CURRENT APPLICATION NUMBER: US/09/562,737
CURRENT APPLICATION NUMBER: US/09/562,737
CURRENT FILING DATE: 2000-05-01
NUMBER OF SEQ ID NOS: 132
                                                                                                                                                                                                              CLASSIFICATION: 424
ATTORNEY/AGENT INFORMATION:
NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 2101
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH: 749
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
                                                                                                                                                                             TELEFAX: (206) 682-6031 INFORMATION FOR SEQ ID NO: 3:
                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: IBM PC compatible
COMPUTER: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/946,026 FILING DATE: 07-OCT-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Dillon, Davin C.
APPLICANT: Twardzik, Daniel R.
APPLICANT: Mitcham, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: COMPOUNDS AND METHODS FOR IMMUNOTHERAPY TITLE OF INVENTION: AND IMMUNODIAGNOSIS OF PROSTATE CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       163 IIDQIVA 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  225 IIDQIVA 231
                                                                           TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ADDRESSEE:
                                                                                                                                      LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          h 3.2%; Score 7; DB of Similarity 100.0%; Pred. No. 63 7; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98104-7092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Seattle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/08946026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Washington
                                                                                                                                      858 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             E: SEED and BERRY LLP 6300 Columbia Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Description of Artificial Sequence: Synthetic Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Steven G
  3.2%;
                                                                                                                                                                                                                                                             210121.424C1
  Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  701 Fifth Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 749;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
```

```
Query Match
Best Local Similarity
Thes 7; Conserve
RESULT 19
US-09-162-564-6
                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; TYPE: PRT
; ORGANISM: Haemophilus influenzae
US-09-206-942-41
                                                                                                                                                                                                    ; TYPE: PRT
; ORGANISM: Haemophilus influenzae
US-09-206-942-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-206-942-39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-206-942-41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 17
                                                                                                                                                                                                                                                                         SOFTWARE: Pa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 39, Application US/09206942 Patent No. 6432669
GENERAL INFORMATION:
                                                                                                                                                     Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Ver. 2.1
SEQ ID NO 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 41, Application US/09206942
Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                         APPLICANT: LOOSMOTE, Sheena M.
APPLICANT: Yang, Yan-Ping
APPLICANT: Xang, Yan-Ping
APPLICANT: Klein, Michel H.
TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High
TITLE OF INVENTION: Molecular Weight Proteins
FILE REFERENCE: 1038-661 MIS:jb
CURRENT APPLICATION NUMBER: US/09/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER FILING DATE: 1998-10-07
NUMBER: O9 SEQ ID NOS: 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High TITLE OF INVENTION: Molecular Weight Proteins FILE REPERIOCE: 1038-66 MIS: jb CURRENT APPLICATION NUMBER: US/09/206,942 CURRENT FILING DATE: 1998-12-08 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07 NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: LOOSMORE, Sheena M. APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LENGTH: 1005
                                                                                                                                                                                                                                                           LENGTH: 1011
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        168 VALNSGS 174
                                                                                                     168 VALNSGS 174
                                                                 237 VALNSGS 243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                231 VALNSGS 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            734 EGKAIID 740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              159 EGKAIID 165
                                                                                                                                                                                                                                                                                               PatentIn Ver. 2.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7;
                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%;
                                                                                                                                   3.2%; Score 7; DB 4
100.0%; Pred. No. 84,
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 4;
                                                                                                                                                     DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 1005;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                      Length 1011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                   0,
                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
```

```
; LENGTH: 107
; TYPE: PRT
; ORGANISM: Oryctolagus cuniculus
US-09-162-564-6
                                                                             ; MOLECULE TYPE: protein US-08-207-481-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-207-481-31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Reghevachari, Nalini
APPLICANT: Qiao, Fengyu
TITLE OF INVENTION: COMPOSITION AND METHOD FOR THE PREVENTION AND TREATMENT
TITLE OF INVENTION: OF OXIDATIVE DAMAGE IN OCULAR TISSUES
FILE REFERENCE: UNL-98-21
CURRENT APPLICATION NUMBER: US/09/162,564
CURRENT FILING DATE: 1998-09-29
NUMBER OF SEQ ID NOS: 9
SOFTWARE: Patentin Ver. 2.0
SEQ ID NO 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity 100.
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 31, Application US/08207481 Patent No. 5820866
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 6, Application US/09162564 Patent No. 6379664
     Query Match 2.8%; Score 6; DB
Best Local Similarity 100.0%; Pred. No. 1.
Matches 6; Conservative 0; Mismatches
                                                                                                                                                                      TELEFAX: 303/863-0223
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ENERAL INFORMATION:
APPLICANT: Lou, Marjorie
                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compati
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Kappler, John W.
APPLICANT: Marrack, Philippa
TITLE OF INVENTION: PRODUCT AND PROCESS FOR T CELL
TITLE OF INVENTION: REGULATION
                                                                                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: KOVATÍK, JOSEPH E.
REGISTRATION NUMBER: 33,005
REFERENCE/DOCKET NUMBER: 28
                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
ADDRESSEE: SHERIDAN ROSS & MCINTOSH
                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION: TELEPHONE: 303/863-9700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   190 QEFVNS 195
                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/207,481 FILING DATE: 04-MAR-1994 CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: DENVER
STATE: COLORADO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3 QEFVNS 8
                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET:
                                                                                                                                                    LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  80202
                                                                                                                                   d: 121 amino acids amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1700 LINCOLN STREET, SUITE 3500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                     linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.8%; Score 6; DB 4
100.0%; Pred. No. 1.1
tive 0; Mismatches
                                                                                                                                                                                                                                                                        2879-8
                                                                                                                                                                                                                                                                                                                                                                                                                     Version #1.25
No. 1.2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 4; LC.,
No. 1.1e+02;
0;
                                          Length 121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 107;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
         Indels
       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

Ś

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                             US-08-992-176-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 21
PCT-US95-02689-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; MOLECULE TYPE: protein PCT-US95-02689-33
                                                                                                                                                                                                                                                            Sequence 8, Application US/08992176
Patent No. 6125331
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 33, Application PC/TUS9502689 GENERAL INFORMATION:
                                   SOFTWARE: PatentIn Ver. SEQ ID NO 8
                                                                       TITLE OF INVENTION: STRUCTURAL ALIGNMENT METHOD MAKING USE OF A DOUBLE TITLE OF INVENTION: DYNAMIC PROGRAMMING ALGORITHM
FILE REPERENCE: 9200-0001-2
CURRENT APPLICATION NUMBER: US/08/992,176
CURRENT FILING DATE: 1997-12-17
EARLIER APPLICATION NUMBER: JP 8-340727
EARLIER FILING DATE: 1996-12-20
NUMBER OF SEQ ID NOS: 10
                                                                                                                                                                                                                                             APPLICANT: TOH, Hiroyuki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEFAX: 303/863-0223 INFORMATION FOR SEQ ID NO: 33:
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTORNEY/AGENT INFORMATION:
NAME: KOVATÍK, JOSEPH E.
REGISTRATION NUMBER: 33,005
REFERENCE/DOCKET NUMBER: 28
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: National Jewish Center for Immunology and APPLICANT: Respiratory Medicine APPLICANT: Respiratory Medicine APPLICANT: Kappler, John W. APPLICANT: Marzack, Philippa TITLE OF INVENTION: PRODUCT AND PROCESS FOR T CELL R. NUMBER OF SEQUENCES: 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE CHARACTERISTICS:
LENGTH: 121 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION DATA:
                  ENGTH: 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                              117 AAVILL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11
                                                                                                                                                                                                                                                                                                                                                                                                         11 AAVILL 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: USA
ZIP: 80202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.8%;
Local Similarity 100.0%;
es 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: PCT/
FILING DATE: 03-MAR-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            T: 1700 LINCOLN STREET, SUITE 3500
DENVER
COLORADO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  303/863-9700
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SHERIDAN ROSS & MCINTOSH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PCT/US95/02689
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 6; DB 5; Le
Pred. No. 1.2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2879-8-PCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FOR T CELL REGULATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
; OTHER INFORMATION:
; OTHER INFORMATION:
US-08-992-176-8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
망
                                            Query Match
Best Local Similarity
Watches 6; Conserve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-040-213-2
                            Ş
                                                                                                                      US-09-040-213-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 2, Application US/09040213
Patent No. 6287804
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                               INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
LENGTH: 178 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: USA
ZIP: 19103-2793
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatibl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM: Artificial Sequence FEATURE:
                                                                                                                                                                                                                                                                                     FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Falk, Stephen T
REGISTRATION NUMBER: 36,
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                            OPERATING SYSTEM: Windows 95
SOFTWARE: FastSEQ for Windows Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                           TELECOMMUNICATION INFORMATION: TELEPHONE: 215-994-2488
                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA: APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Black, Michael TITLE OF INVENTION: nrdG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               111 KEAILK 116
135 VLVDGL
                            175 VLVDGL 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            40 KEAILK 45
                                                                                                                                                                                                                             TELEPHONE: 215-994-2222
                                                                                                                                    STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET:
                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Philadelphia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              E: Dechert, Price & Rhoads
4000 Bell Atlantic Tower, 1717 Arch Stre
                                                        2.8%; Score 6; ilarity 100.0%; Pred. No. Conservative 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IBM Compatible
SYSTEM: Windows 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Description of Artificial Sequence:alpha-protein 1gdi)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.8%; Score 6; 1
100.0%; Pred. No.
tive 0; Mismatcl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Price & Rhoads
                                                                                                                                                                                                                                                                                                                                                                                                                             US/09/040,213
                                                                                                                                                                                                                                                                                                    36, 795
                                                                                                                                                                                                              Ν.
                                                                                                                                                                                                                                                                                          GM10136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                        DB 4; Ler
lo. 1.8e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 3; Lo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                        Length 178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           o
;;
                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                             ٥.
```

US-09-026-958-2
; Sequence 2, Application US/09026958
; Patent No. 6150098
; GENERAL INFORMATION:
; APPLICANT: Zhang, Ke

RESULT 24

```
; Sequence 2, Application US/09057860A
Patent No. 6277820
; GENERAL INFORMATION:
APPLICANT: Arnon Rosenthal
APPLICANT: Mary Hynes
APPLICANT: Wellan Ye
ITTLE OF INVENTION: Method Of Dopar
TITLE OF INVENTION: Neuron Formatic
NUMBER OF SEQUENCES: 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 25
US-09-057-860A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-026-958-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
ATTORNEY JAGENT INFORMATION:
NAME: Svoboda, Craig G.
REGISTRATION NUMBER: 39,044
REFERENCE/DOCKET NUMBER: P136
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650/225-1489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NAME: Winter, Robert B.
REFERENCE/DOCKET NUMBER:
INFORMATION FOR SEQ ID NO: 2:
                                                                                                                MEDIUM TYPE: 3.5 inch, 1.44 Mb floppy disk COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS SOFTWARE: Winpatin (Genentech) CURRENT APPLICATION DATA: APPLICATION NUMBER: US/09/057,860A FILING DATE: 09-Apr-1998 CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: ISM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOPTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: 3.5 incl
                                                                                                                                                                                                                                                                                                                                                                                                                  CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Pacifici, Robert
TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR IDENTIFYING
TITLE OF INVENTION: NOVEL SECRETED MAMMALIAN POLYPEPTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          114 PPQAAV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60 PPQAAV 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.8%; Score 6; I Local Similarity 100.0%; Pred. No. 108 6; Conservative n. winner.
                                                                                                                                                                                                                                                                                                   ZIP: 94080
                                                                                                                                                                                                                                                                                                                                                        CITY: South San Francisco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY: U.S.A. ZIP: 91320-1789
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET: One Amgen Center Drive CITY: Thousand Oaks
                                                                                                                                                                                                                                                                                                                     COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                 STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US/09/026,958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                amino acid
                                                                                                                                                                                                                                                                                                                                          California
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 California
                                                                                                                                                                                                                                                                                                                                                                             1 DNA Way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     202 amino acids
                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Amgen Inc.
                                                                                                                                                                                                                                                                                                                                                                                             Genentech, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Method Of Dopaminergic And Seratonergic Neuron Formation From Neuroprogenitor Cells
                                           P1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A-522
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4; I
o. 2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
```

```
밁
                                                                                                                     ; MOLECULE TYPE:
; HYPOTHETICAL:
US-08-177-109A-60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 26
US-08-177-109A-60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-057-860A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 60, Application US/08177109A Patent No. 5869615
                                                                         Query Match
Best Local :
                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Release #1
CURRENT APPLICATION DATA:
APPLICATION UMBER: US/08/177
FILING DATE: 03-JAN-1994
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: Pabst, Patrea L.
REGISTRATION NUMBER: WI 1
REFERENCE/DOCKET NUMBER: WI 1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (404) 873-8794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELEFAX: 650/952-9881
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                            TELEFAX: (404) 873-87
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                         COUNTRY: USA
ZIP: 30309-3450
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Dennis E.
                            120 ILLTDG 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
125 ILLTDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  114 PPQAAV 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ADDRESSEE: Patrea L. Pabet
STREET: 2800 One Atlantic Center
STREET: 1201 West Peachtree Street
CITY: Atlanta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60 PPOAAV 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 202 amino acids TYPE: Amino Acid
                                                                       Local
                                                                                                                                                                   TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TOPOLOGY:
                                                                                                                                                                                              LENGTH:
                                                          Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Georgia
                                                                                                                                                                                              207 amino acids
                                                                                                                                                                                                                                            (404) 873-8795
                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                         E: Floppy disk
IBM PC compatible
SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                 linear
                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . Hourcade and Teresa J. Ogles
MODIFIED COMPLEMENT PROTEASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.8%; Score 6; DB 100.0%; Pred. No. 2e-
tive 0; Mismatches
                                                         2.8%; Score 6; DB:
100.0%; Pred. No. 2e
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                   US/08/177,109A
                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                 Version #1.25
                                                                       DB 2; 1
o. 2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4;
5. 2e+02;
                                                                                     Length 207;
                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                          Indels
                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

RESULT 27
US-08-697-706-60
; Sequence 60, Application US/08687706
; Patent No. 5928892
; GENERAL INFORMATION:

APPLICANT: Dennis E. Hourcade and Teresa J. Oglesby

```
밁
                                                                                                                                                                                                                                                                                                                                                                                      RESULT 28
US-08-031-295-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-687-706-60
                                                                                                                                                                                                                                                             GENERAL INFORMATION:
APPLICANT: LIVEY, Ian
APPLICANT: DORNER, Frei
TITLE OF INVENTION: MET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEPAX: (404) 873-8795
INFORMATION FOR SEQ ID NO: (
SEQUENCE CHARACTERISTICS:
LENGTH: 207 amino acids
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                 Sequence 2, Application US/08031295 Patent No. 5530103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC comparible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/031,295
FILING DATE: 19930312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTORNEY/AGENT INFORMATION:
NAME: Pabst, Patrea L.
REGISTRATION NUMBER: 31,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MOLECULE TYPE: HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE/DOCKET NUMBER: WU
TELECOMMUNICATION INFORMATION:
TELEPHONE: (404) 873-8794
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE OF INVENTION:
                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          125 ILLTDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         120 ILLTDG 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: US/0 FILING DATE: 26-JUL-1996 CLASSIFICATION: 514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Patrea L. Pabst
STREET: 2800 One Atlantic Center
STREET: 1201 West Peachtree Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 08/177,109 FILING DATE: 03-JAN-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CITY: Atlanta
STATE: Georgi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                                                                                         COUNTRY:
                                                                                                                                                                                               STREET:
                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6.
                                                                                                                                            20007-5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           30309-3450
                                                                                                                                                                        SSEE: Foley & Lardner
T: 3000 K Street, N.W., Suite 500
Washington, D.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Georgia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207 amino acids
                                                                                                                                                             USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (404) 873-8795
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.8%;
                                                                                                                                                                                                                                                              PREVENTION OF LYME DISEASE
                                                                                                                                                                                                                                                                                                  Freidrich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MODIFIED COMPLEMENT PROTEASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US/08/687,706
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31,284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WU 107 DIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 6; I
; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 207;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-07-903-580-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-031-295-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 2, Appr---
Sequence 2, Appr---
Sequence 2, Appr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: US 07/727,245
FILING DATE: 11-JUL-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 30472/142
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202)672-5300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX: 904136
INFORMATION FOR SEQ ID NO:
                              FILING DATE: 11-JUL-1991
ATTORNEY/AGENT INFORMATION:
NAME: BENT, Stephen A.
REGISTRATION NUMBER: 29,768
REFERENCE/DOCKET NUMBER: 3047
TELECOMMUNICATION INFORMATION:
                                                                                                                                                              FILING DATE: 19920625
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US 07/824,161
FILING DATE: 22-JAN-1992
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
LENGTH: 212 amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 22-JAN-
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                           SOFTWARE: Patentin Rel
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE: 19920625
                                                                                                                                                                                                                                                                                                                                                                      COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: LIVEY, IAN
APPLICANT: DORNER, Freidrich
TITLE OF INVENTION: METHOD AND COMPOSITION FOR
TITLE OF INVENTION: PREVENTION OF LYME DISEASE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION DATA:
OTTOMINATION US 07/903,580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     158 KEAILK 163
                                                                                                                                                                                                                                                                                                            COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release "."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    40 KEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity 100 nes 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (202/672-5399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US 0 FILING DATE: 25-JUN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH: 212 amino acids TYPE: AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
ZIP: 22313-0299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Alexandria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET:
                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/07903580
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Virginia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  E: Foley & Lardner
1800 Diagonal Road, Suite 500
(703)683-4109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22-JAN-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.8%; Score 6; DB
100.0%; Pred. No. 2.
ative 0; Mismatches
                                                                                                                                                 US 07/727,245
                                                                                                                                                                                                                                                                                                                 Release #1.0, Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US 07/824,161
                                                                                                                                                                                                                                                                                 US/07/903,580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2:
                                                        30472/131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30472/142 IMMU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
```

Gaps

```
Query Match
Best Local Similarity
""" ohes 6; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 31
US-08-512-955-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: PRT
; ORGANISM: Staphylococcus epidermidis
US-09-134-001C-2945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 30
US-09-134-001C-2945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-07-903-580-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: US 60/055,779
PRIOR FILING DATE: 1997-08-14
NUMBER OF SEQ ID NOS: 5674
SEQ ID NO 2945
LENGTH: 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: LYNN DOUGETTE-Stamm et al
APPLICANT: LYNN DOUGETTE-STAMM et al
TITLE OF INVENTION: NUCLEIC ACID AND AMINO ACID SEQUENCES RELATING TO STAPHYLOCOCCUS
TITLE OF INVENTION: EPIDERWIDIS FOR DIAGNOSTICS AND THERAPEUTICS
FILE REFERENCE: GTC-007
CURRENT PILLING DATE: 1998-08-13
PRIOR APPLICATION NUMBER: US 60/064,964
PRIOR PILLING DATE: 1997-11-08
PRIOR FILING DATE: 1997-11-08
                                                                                                                                                                                                                                                                                                                                                                                 Sequence 4, Application US/08512955
Patent No. 5976536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 2945, Application US/09134001C Patent No. 6380370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.8%; Score 6;
Best Local Similarity 100.0%; Pred. No.
Matches 6; Conservative 0; Mismarol
                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Stephens, David S.
APPLICANT: Kahler, Charlene M.
TITLE OF INVENTION: Neisseria Mutants, Lipooligosaccharides
TITLE OF INVENTION: and Immunogenic Compositions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEX: 899149
INFORMATION FOR SEQ ID NO:
         ZIP: 80303

COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE CHARACTERISTICS:
                                                                                                                                                                        STREET: 55...
STREET: 55...
CTTY: Boulder
Colorad
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133 PVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      158 KEAILK 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40 KEAILK 45
                                                                                                                                                      COUNTRY: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    62 PVEEVK 67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 212 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
                                                                                                                                                                                                                              ADDRESSEE:
                                                                                                                                                                          Colorado
                                                                                                                                                                                                            E: Greenlee and Winner, P.C.
5370 Manhattan Circle, Suite 201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.8%; Score 6; DB ilarity 100.0%; Pred. No. 2.: Conservative 0; Mismatches
US/08/512,955
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 4; L., NO. 2.2e+02; 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 4; Le
o. 2.1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 226;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
```

```
₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; LENGTH: 246
; TYPE: PRT
; ORGANISM: Streptococcus mutans
US-09-627-376-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 32
US-09-627-376-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                              US-09-452-239-20
                                                                                                                                                                                                                                                                                                                              RESULT 33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-08-512-955-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION FOR SEQ ID NO: 4
SEQUENCE CHARACTERISTICS:
LENGTH: 242 amino acids
TYPE: amino acid
TYPE: amino acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:

APPLICANT: Qi, FENGXIA

TITLE OF INVENTION: MUTACIN I BIOSYNTHESIS (
FILE REFERENCE: UAB-17402/22

CURRENT APPLICATION NUMBER: US/09/627,376

CURRENT FILING DATE: 2001-05-30
                                                                                                                                                                                                                                                          Sequence 20, Application US/09452239
Patent No. 6465229
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQ ID NOS: 17
SOFTWARE: PatentIn version 3.0
SEQ ID NO 14
LENGTH: 246
                                                  SEQ ID NO 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 14, Application US/09627376 Patent No. 6342385
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
                                                                TITLE OF INVENTION: Plant Caffeoyl-CoA O-Methyltransferase FILE REFERENCE: BB1284 US NA CURRENT APPLICATION NUMBER: US/09/452,239
CURRENT FILING DATE: 1999-12-01
EARLIER APPLICATION NUMBER: 60/110,594
EARLIER FILING DATE: 1998-December-02
NUMBER OF SEQ ID NOS: 50
SOFTWARE: Microsoft Office 97
                                                                                                                                                                                                       APPLICANT: Rafalski, Antoni J.
APPLICANT: Fader, Gary M.
APPLICANT: Cahoon, Rebecca E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Ferber, Donna M.
REGISTRATION NUMBER: 33,878
REFERENCE/DOCKET NUMBER: 12-9
TELECOMMUNICATION INFORMATION:
TELEPHONE: (303) 499-8089
TELEPAX: (303) 499-8089
ORGANISM: Glycine max
                   LENGTH: 246
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                  132 AVILLT 137
                                                                                                                                                                                                                                                                                                                                                                                                                     118 AVILLT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                168 VALNSG 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            177 VALNSG 182
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local Similarity nes 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           / Match 2.8%; Score 6; DB 2.6%
Local Similarity 100.0%; Pred. No. 2.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 09-AUG-
CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               09-AUG-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.8%; Score 6; DB
100.0%; Pred. No. 2.
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            12-95
                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 4; L. No. 2.4e+02; 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     e Chen, Ping
GENES AND PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 246;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 242;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
CURRENT APPLICATION NUMBER: US/09/452,239
CURRENT FILING DATE: 1999-12-01
EARLIER APPLICATION NUMBER: 60/110,594
EARLIER FILING DATE: 1998-December-02
NUMBER OF SEQ ID NOS: 50
SOFTWARE: Microsoft Office 97
SEQ ID NO 18
LENGTH: 247
TYPE: PRT
ORGANISM: Glycine max
US-09-452-239-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; LENGTH: 246
; TYPE: PRT
; ORGANISM: Glycine max
US-09-452-239-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-452-239-20
   밁
                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-452-239-22
                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-452-239-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                        Sequence 18, Applicat Patent No. 6465229 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOFTWARE: Microsoft Office 97
SEQ ID NO 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
                                                                Matches
                                                                           Query Match 2.8%;
Best Local Similarity 100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Rafalski, Antoni J.
APPLICANT: Fader, Gary M.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Control Plant Caffeoyl-CoA O-Methyltransferase
FILE REFERENCE: BB1284 US NA
CURRENT APPLICATION NUMBER: US/09/452,239
CURRENT FILING DATE: 1999-12-01
                                                                                                                                                                                                                                                                                            APPLICANT: Rafalski, Antoni J.
APPLICANT: Fader, Gary M.
APPLICANT: Cahoon, Rebecca E.
TITLE OF INVENTION: Plant Caffeoyl-CoA O-Methyltransferase
FILE REFERENCE: BB1284 US NA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EARLIER APPLICATION NUMBER: 60/110,594
EARLIER FILING DATE: 1998-December-02
NUMBER OF SEQ ID NOS: 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  234 PVGDGI 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   234 PVGDGI 239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
   235
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98 PVGDGI 103
                                98 PVGDGI 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98 PVGDGI 103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity
nes 6; Conserv
PVGDGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        22, Application US/09452239
5. 6465229
                                                                                                                                                                                                                                                                                                                                                                                                        Application US/09452239
   240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.8%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.8%; Score 6; DB
100.0%; Pred. No. 2.
tive 0; Mismatches
                                                           2.8%; Score 6; DB 4
100.0%; Pred. No. 2.4
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 6; 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 4; Le
                                                                              DB 4; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .4e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 246;
                                                                                        Length 247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 246;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

```
; SEQ ID NO 50
; LENGTH: 247
; TYPE: PRT
; ORGANISM: Populus tremuloides
US-09-452-239-50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 37
US-09-189-060B-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-09-452-239-50
                                                                                                                                                                                                                                                                                                                                                                                         ; TYPE: PRT
; ORGANISM: Hybrid
US-09-189-060B-12
                                                                                                                                                                                                                                     밁
                                                                                                                                                        US-09-452-239-24
                                                                                                                                                                            RESULT 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
Sequence 24, Application US/09452239
Patent No. 6465229
GENERAL INFORMATION:
APPLICANT: Rafalski, Antoni J.
APPLICANT: Fader, Gary M.
APPLICANT: Cahoon, Rebecca E.
APPLICANT: Cahoon, Rebecca E.
TITLE OF INVENTION: Plant Caffeoyl-CoA O-Methyltransferase
FILE REFERENCE: BB1284 US NA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 50, Application US/09452239 Patent No. 6465229
                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: FastSEQ for Windows Version 4.0
SEQ ID NO 12
LENGTH: 248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patent No. 6270968
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 12,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Rafalski, Antoni J.
APPLICANT: Fader, Gary M.
APPLICANT: Cahoon, Rebecca E.
TITLE OF INVENTION: Plant Caffeoyl-CoA O-Methyltransferase
FILE REFERENCE: BB1284 US NA
CURRENT APPLICATION NUMBER: US/09/452,239
CURRENT FILING DATE: 1998-12-01
EARLIER APPLICATION NUMBER: 60/110,594
EARLIER FILING DATE: 1998-December-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: PCT/DK97/00216
PRIOR FILING DATE: 1997-05-12
NUMBER OF SEO TO NOC. 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Kauppinen, Markus
APPLICANT: Borge, Diderichsen
TITLE OF INVENTION: Method Of Providing No.
FILE REFERENCE: 4772.204-US
CURRENT APPLICATION NUMBER: US/09/189,060B
CURRENT FILING DATE: 1998-11-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER OF SEQ ID NOS: 50
SOFTWARE: Microsoft Office 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Dalboge, Henrik APPLICANT: Sandal, Thomas
                                                                                                                                                                                                                                     206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             235 PVGDGI 240
                                                                                                                                                                                                                                                                         201 QILVTE 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98 PVGDGI 103
                                                                                                                                                                                                                                     QILVTE 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Application US/09189060B
                                                                                                                                                                                                                                                                                                               ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.8%; Score 6; DB
100.0%; Pred. No. 2.
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                       2.8%;
                                                                                                                                                                                                                                                                                                               ; Score 6; DB 4
%; Pred. No. 2.4
0; Mismatches
                                                                                                                                                                                                                                                                                                           DB 4; bc...
No. 2.4e+02;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 4; Ler
5. 2.4e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6270968el DNA Sequences
                                                                                                                                                                                                                                                                                                                                                   Length 248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 247;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                 ,;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                   Gaps
```

```
APPLICANT: Rafalski, Antoni J.
APPLICANT: Rafalski, Antoni J.
APPLICANT: Calnoon, Rebecca E.
TITLE OF INVENTION: Plant Caffeoyl-CoA O-Methyltransferase
FILE REFERENCE: BB1284 US NA
CURRENT APPLICATION NUMBER: US/09/452,239
CURRENT FILING DATE: 1999-12-01
EARLIER APPLICATION NUMBER: 60/110,594
EARLIER APPLICATION NUMBER: 00/110,594
EARLIER FILING DATE: 1999-December-02
NUMBER OF SEQ ID NOS: 50
SOFTWARE: Microsoft Office 97
SEQ ID NO 26
LENGTH: 248
TYPE: PRT
ORGANISM: Glycine max
US-09-452-239-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
NAME/KEY: UNSURE
LOCATION: (7)
US-09-452-239-24
                                                                                                                                                                                                                                                                                                 RESULT 40
US-08-207-481-20
                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 39
US-09-452-239-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                        Sequence 20, Application US/08207481
Patent No. 5820866
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 26, Application US/09452239 Patent No. 6465229 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match 2.8
Best Local Similarity 100.
Matches 6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOPTWARE: Microsoft Office 97
SEQ ID NO 24
LENGTH: 248
TYPE: PRT
ORGANISM: Glycine max
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CURRENT APPLICATION NUMBER: US/09/452,239
CURRENT FILING DATE: 1999-12-01
EARLIER APPLICATION NUMBER: 60/110,594
EARLIER FILING DATE: 1998-December-02
NUMBER OF SEQ ID NOS: 50
                                                                       NUMBER OF SEQUENCES: 45
CORRESPONDENCE ADDRESS:
ADDRESSE: SHERIDAN ROSS & MCINTOSH
STREET: 1700 LINCOLN STREET, SUITE 3500
                                                                                                                                                             APPLICANT: Kappler, John W.
APPLICANT: Marrack, Philippa
TITLE OF INVENTION: PRODUCT AND PROCESS FOR T CELL
TITLE OF INVENTION: REGULATION
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                          236 PVGDGI 241
                                                      STREET: 1700
CITY: DENVER
STATE: COLORA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               236 PVGDGI 241
                                                                                                                                                                                                                                                                                                                                                                                                                                       2.8%; Score 6; 1
Local Similarity 100.0%; Pred. No.
hes 6; Conservative 0; Mismatch
                                                                                                                                                                                                                                                                                                                                                                                                           98 PVGDGI 103
                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                98 PVGDGI 103
                 80202
                                                      COLORADO
                                    USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.8%; Score 6; DB .
100.0%; Pred. No. 2..
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                  0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 4; Len
vo. 2.4e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 4; Length 248; DB 2.4e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
```

Search completed: April Job time: 43 secs

9, 2003, 14:46:24

```
뭉
                                Ş
                                                                                                                                       ; MOLECULE TYPE: protein US-08-207-481-20
                                                                                                                                                                                                                                                                         MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/207,481
FILING DATE: 04-MAR-1994
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: KOVALIK, JOSEPH E.
REGISTRATION NUMBER: 33,005
REFERENCE/DOCKET NUMBER: 2879-8
TELECOMMUNICATION INFORMATION:
TELEPHONE: 303/863-9700
                                                                           Query Match
Best Local Similarity
                                                                    Matches
                                                                                                                                                                                                                      TELEFAX: 303/863-0223
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                       117 AAVILL 122
11 AAVILL 16
                                                                                                                                                                       LENGTH: 254 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                    6
                                                                    Conservative
                                                                2.8%; Score 6; DB
100.0%; Pred. No. 2.
tive 0; Mismatches
                                                                                    DB 2; Le
                                                                                                   Length 254;
                                                                    0
                                                                    Indels
                                                                  o
;:
                                                                Gaps
```

		•.							-																		hr.
		,													ν.		;	ď.								novi ej r	
																										•	*
		10"	ia,	-					•																		
•			** 9		" Jag"		2°				78	i. Žv	* 1			A S			n e jêg	1.	\$		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		Poly.		
	n eng				i a		r.	en Sil										**							Se Se		
													14														
	*												4 - *									ME.					
		Į.												rytt.			*										
						6																					
ľ																				,							
	٠																				-		9		i ·		
																				•.		•				r r	
	a				n e																						
		ver i				•	er e			÷.												والماسية المراسية الم		•			

ş

```
Result
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Post-processing: Listing first 1000 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Word size
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein -
                                                                                                                                                                                                                                                                                                                                                        Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                       Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2
218
1 AEVTASCTKRVESY
                                                                                                                                                                                                                                                                                                                                                                                                                  11111987654321
40210.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OLIGO
Gapop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              April 9, 2003, 14:45:29 ; Search time 36 Seconds
(without alignments)
370.213 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      248812 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Published_Applications_AA:*
                                                                                                                                                                                                                                                                                                                                                                                                           //ggn2_6/ptodata/2/pubpaa/US08_NEW_PUB.pep:*
//ggn2_6/ptodata/2/pubpaa/US06_NEW_PUB.pep:*
//ggn2_6/ptodata/2/pubpaa/US06_PUBCOMB.pep:*
//ggn2_6/ptodata/2/pubpaa/US06_PUBCOMB.pep:*
//ggn2_6/ptodata/2/pubpaa/US07_NEW_PUB.pep:*
//ggn2_6/ptodata/2/pubpaa/US07_NEW_PUB.pep:*
//ggn2_6/ptodata/2/pubpaa/US07_NEW_PUB.pep:*
//ggn2_6/ptodata/2/pubpaa/US08_PUBCOMB.pep:*
//ggn2_6/ptodata/2/pubpaa/US08_PUBCOMB.pep:*
//ggn2_6/ptodata/2/pubpaa/US09_PUBCOMB.pep:*
//ggn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
0: //ggn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
0: //ggn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
0: //ggn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
0: //ggn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep:*
0: //ggn2_6/ptodata/2/pubpaa/US00_NEW_PUB.pep:*
0: //ggn2_6/ptodata/2/pubpaa/US00_NEW_PUB.pep:*
0: //ggn2_6/ptodata/2/pubpaa/US00_NEW_PUB.pep:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AEVTASCTKRVESYNYLVDY....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60.0,
                                                                                                                                                                                                                                                                                       Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       61136040 residues
 9 US-10-101-464A-551

9 US-09-854-133-37

10 US-09-738-973-37

10 US-09-854-133-42

10 US-09-854-133-42

10 US-09-854-133-42

10 US-09-738-973-42

10 US-09-854-133-46

10 US-09-854-133-46

10 US-09-854-133-46

10 US-09-738-973-43

10 US-09-738-973-43

10 US-09-854-133-40

0 US-09-854-133-40

0 US-09-854-133-40

10 US-09-854-133-60

10 US-09-815-246-761-41312

10 US-09-864-761-33862
                                                                                                                                                                                                                                                                                       BG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gapext
                                                                                                                                                                                                                                                                                                                               SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .QEQILVTEEVVVLRGVNFAF
Sequence 551, App
Sequence 37, Appl
Sequence 39, Appl
Sequence 39, Appl
Sequence 42, Appl
Sequence 42, Appl
Sequence 43, Appl
Sequence 43, Appl
Sequence 43, Appl
Sequence 46, Appl
Sequence 40, Appl
Sequence 41, Appli
Sequence 41, Appli
Sequence 41, Appli
Sequence 41312, A
Sequence 36602, A
                                                                                                                                                                                                                                                                                    Description
     6
0
10
10
10
10
10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6
6
6
6
7
7
9
9
10
10
10
10
                                                                                                                                               9 9 9 10
                US-09-981-876-242
US-09-148-545-186
US-09-148-545-186
US-09-148-545-186
US-09-148-545-186
US-09-148-545-186
US-09-148-545-186
US-09-148-46027
US-09-148-46027
US-09-148-46027
US-09-148-46027
US-09-148-271-179
US-09-148-271-179
US-09-148-271-179
US-09-148-271-179
US-09-148-271-179
US-09-148-271-179
US-09-148-271-114
US-09-148-282-17
US-09-148-282-17
US-09-148-282-17
US-09-148-282-17
US-09-148-282-17
US-09-148-282-17
US-09-148-282-17
US-09-148-283-180
US-09-148-282-183-19
US-10-023-152-4
US-09-1452-239-18
US-09-1452-239-12
 Sequence 242, App
Sequence 242, App
Sequence 186, App
Sequence 186, App
Sequence 4536, Ap
Sequence 4536, Ap
Sequence 179, App
Sequence 179, App
Sequence 179, App
Sequence 3728, A
Sequence 3728, A
Sequence 333, App
Sequence 933, App
Sequence 933, App
Sequence 933, App
Sequence 30, App
Sequence 30, App
Sequence 1175, Ap
Sequence 5102, App
Sequence 5102, App
Sequence 1175, App
Sequence 1175, App
Sequence 1175, App
Sequence 1175, App
Sequence 114, Appl
Sequence 1175, App
Sequence 278, Appl
Sequence 278, Appl
Sequence 897, App
Sequence 897, App
Sequence 499, Appl
Sequence 499, Appl
Sequence 499, Appl
Sequence 118, Appl
Sequence 278, Appl
Sequence 278, Appl
Sequence 179, Appl
Sequence 189, Appl
Sequence 170, Appl
Sequence 170, Appl
Sequence 171, Appl
Sequence 171, Appl
Sequence 172, Appl
Sequence 173, Appl
Sequence 174, Appl
Sequence 175, Appl
Sequence 5, Appli
```

150 150 150 160 160 160 160 160 160 160 160 160 16	153 154 156	150	4.47		42	4 6	4 9 0	3 W G		3 2	310	221	126	123	121 122	119 120	117 118	115 116	113		109	108	106	9 C	103	101	99	97 98	96 95	4 3
<b>თთთთთთთთ</b> თ	თთთთ	ითთ	, o, o	თ თ თ	<b>,</b> 0, 0	, o, c	თთი	nono	n 00 0	, o, o,	თთ	თ თ (	თთი	, 0, 0,	თ თ	თ თ	თ თ	თ თ	თთ	. 0. 0	9 0	, o	000	ש פי	თ თ	თთ	n 00 (	თ თ	თ თ	თთ
518 530 530 537 570 590 600	511 511 512 517	507	506	506 606	1 U U	506	506 506	л U U	492	492	492 492	492	492 492	492	484 492	474 475	465 474	464 465	446 447	438	432	417	414	393 293	374 387	374	360	356 356	345 347	330 330
1000	10010	10 91	10	100	100	10	10	110	10	10	10	10	ωων	<b>.</b> • •	99	9	9 10	12 10	<b>9</b> 9	10	10	9 2	110	9	9	10	9 6	10	9 10	99
0 US-09-815-242-12473 US-10-107-695B-2 US-09-372-148-11 0 US-09-813-797-10 0 US-09-815-242-12086 US-10-227-490-15 US-10-227-490-15 US-09-813-626-3983 US-09-738-626-3983 0 US-09-758-269-12	US-09-733-8822 US-09-773-8822 US-09-773-882-11 US-09-815-242-11232 US-09-801-368-100	US-09-877-476-40 US-09-962-678-4 US-09-895-728-4	US-09-877-476-36 US-09-877-476-38	US-09-877-476-24 US-09-877-476-26 US-09-877-476-30	US-09-877-476-20 US-09-877-476-22	US-09-877-476-16	US-09-877-476-12 US-09-877-476-14	US-09-803-797-12 US-09-877-476-2 US-09-877-476-9	US-09-822-827-932 US-09-892-325-4	US-09-879-792-14 US-09-822-827-895	US-09-780-669-895 US-09-780-669-932	US-09-759-143-895 US-09-759-143-932	US-09-895-814-895 US-09-895-814-895	US-10-012-896-932 US-09-895-793-895	US-09-738-626-6430 US-10-012-896-895	US-09-969-730-249 US-09-741-669-458	US-09-923-922-10 US-09-774-639-371	US-10-095-492-14 US-09-923-922-6	US-09-975-719-267 US-09-738-626-6982	US-09-884-441-390 US-09-884-441-483	US-09-738-626-3771 US-09-925-301-928	US-09-935-642-7	US-09-925-302-706	US-09-813-398-34	US-09-815-242-13650 US-09-712-363-256	US-09-815-242-13473	72-348-9	US-10-084-205-62 US-09-925-637-62	US-09-815-242-5354 US-09-738-626-6559	US-09-966-262-203 US-09-983-966-203
Sequence 12473, A Sequence 2, Appli Sequence 11, Appl Sequence 10, Appl Sequence 12086, A Sequence 15, Appl Sequence 3983, App Sequence 158, Appl Sequence 12, Appl	Sequence 6,78, Ap Sequence 2, Appli Sequence 11, Appl Sequence 11232, A Sequence 100. App	Sequence 40, Appli Sequence 4, Appli Sequence 4, Appli	Sequence 36, Appl Sequence 38, Appl	sequence 24, Appi Sequence 26, Appl Sequence 30, Appl	Sequence 20, Appl Sequence 22, Appl	Sequence 16, Appl	Sequence 12, Appl Sequence 14, Appl	sequence 12, Appli Sequence 2, Appli	Sequence 4, Appli Sequence 4, Appli	Sequence 14, Appl Sequence 895, App	Sequence 895, App Sequence 932, App	Sequence 895, App Sequence 932, App	sequence 932, App Sequence 895, App Sequence 932, App	Sequence 932, App Sequence 895, App	Sequence 6430, Ap Sequence 895, App	Sequence 249, App Sequence 458, App	Sequence 10, Appl Sequence 371, App	Sequence 14, Appl Sequence 6, Appli	Sequence 267, App Sequence 6982, Ap	Sequence 483, App	Sequence 3771, Ap Sequence 928, App	Sequence 8, Appli Sequence 7, Appli	Sequence 706, App	Sequence 34, Appl	Sequence 13650, A Sequence 256, App	ى ب	့် ဖ	Sequence 62, Appl Sequence 62, Appl	Sequence 535; equence 6559,	quence 20: quence 20:
231 231 232 233 234 235 236 236 237 238	225 226 227 228	222 223 224	220 221	21 / 218 219	215 216	214	212	210	208	205	203 204	201	198 199 200	196 197	194 195	192 193	190 191	188 189	186 187	185	182	181	179	177 178	175 176	174	172	170 171	168 169	166 167
22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	N N N N N N N N N N N N N N N N N N N	2223	220 6 221 6	217 6 218 6 219 6	215 215 215	2214	212 6	210 6	208	2005	203 6 204 6	201 6	199 6	196 197 6	194 6 195 6	192 6 193 6	190 6 191 6	188 6 189 6	186 6	185	182	181 6	179 6	177 6 178 6	175 6 176 6	174 6	172 6	170 6 171 6	168 6 169 6	167 6
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ม พ พ ๛ ๑ ๛ ๛ ๛ ๛ ๛ ๛ ๛ ๛ ๛	0000	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 5 5 2 2 4 2 8 8		000	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	N ON O	0 0 0 0 0 0 0 0 0	, o, o, o, o, o, o, o, o, o,	6 2.8	0 0 0 2 2 : 0	თ თ თ ი ი ი ი ი ი	000 000 000	6 2.8 6 2.8	6 2.8 2.8	6 2.8 2.8	6 6 2.8	6 2.8	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 2 . 0 0 0 0	2.8	20.0	6 2.8	ი ი ა.	5 2.8	3 S	6 6 2.8	6 2.8 6 2.8	6 2.8
5 2 2 3 3 1 1 8 5 2 2 3 3 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 2.3 26926 5 2.3 26926 5 2.3 10 5 2.3 13	6 2.8 3011 6 2.8 3011 6 2.8 3298	6 2.8 2201 6 2.8 2383	6 2.8 1945 6 2.8 1979	6 2.8 1210 6 2.8 1319 6 3 8 1488	6 2.8 1192	6 2.8 1192	6 2.8 1185	6 2.8 1170	6 2.8 1148	6 2.8 1094 6 2.8 1119	6 2.8 1000 6 2.8 1028	6 2.8 997	6 2.8 969 2.8 969	6 2.8 914 6 2.8 931	6 2.8 914 6 2.8 914	6 2.8 914 6 2.8 914	6 2.8 905 6 2.8 911	6 2.8 903	6 2.8 839	6 2.8 821 6 2.8 833	6 2.8 796	6 2.8 795	6 2.8 750 6 2.8 750	6 2.8 744 6 2.8 744	6 2.8 739	6 2.8 691	6 2.8 677 6 2.8 684	6 2:8 662 6 2.8 663	6 2.8 659
5 2.3 16 1 5 2.3 16 1 5 2.3 18 9 5 2.3 20 9 5 2.3 20 9	5 2.3 10 9 5 2.3 10 9 5 2.3 10 9	6 2.8 3011 9 6 2.8 3011 1 6 2.8 3298 9	6 2.8 2201 1 6 2.8 2383 1	6 2.8 1945 9 6 2.8 1945 9 6 2.8 1979 9	6 2.8 1210 1 6 2.8 1319 9	6 2.8 1192 1	6 2.8 1192 1	6 2.8 1185 1	6 2.8 1170 1	6 2.8 1148 1	6 2.8 1094 9 6 2.8 1119 1	6 2.8 1000 9 6 2.8 1028 9	6 2.8 997 1	6 2.8 969 9	6 2.8 914 1: 6 2.8 931 1	6 2.8 914 1 6 2.8 914 1	6 2.8 914 1 6 2.8 914 1	6 2.8 905 9 6 2.8 911 1	6 2.8 903 9	6 2.8 839 9	6 2.8 821 9	6 2.8 796 1	6 2.8 795 9	6 2.8 750 9 6 2.8 750 9	6 2.8 744 9 6 2.8 744 9	6 2.8 739 9	6 2.8 691 10	6 2.8 677 10 6 2.8 684 9	6 2.8 662 10 6 2.8 663 9	6 2.8 659
5 2 2 3 3 1 1 8 5 2 2 3 3 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 2.3 10 9 5 2.3 10 9 5 2.3 10 9	6 2.8 3011 9 6 2.8 3011 1 6 2.8 3298 9	6 2.8 2201 1 6 2.8 2383 1	6 2.8 1945 9 6 2.8 1945 9 6 2.8 1979 9	6 2.8 1210 1 6 2.8 1319 9	6 2.8 1192 1	6 2.8 1192 1	6 2.8 1185 1	6 2.8 1170 1	6 2.8 1148 1	6 2.8 1094 9 6 2.8 1119 1	6 2.8 1000 9 6 2.8 1028 9	6 2.8 997 1	6 2.8 969 9	6 2.8 914 1: 6 2.8 931 1	6 2.8 914 1 6 2.8 914 1	6 2.8 914 1 6 2.8 914 1	6 2.8 905 9 6 2.8 911 1	6 2.8 903 9	6 2.8 839 9	6 2.8 821 9	6 2.8 796 1	6 2.8 795 9	6 2.8 750 9 6 2.8 750 9	6 2.8 744 9 6 2.8 744 9	6 2.8 739 9	6 2.8 691 10	6 2.8 677 10 US-09	6 2.8 662 10 US-09-815-242- 6 2.8 663 9 US-10-108-605-2	6 2.8 659 9 US-10-227-490-11

3030300	304	302	300	298 299	296	S	28	$\sim$	Õ	~ ~	~ .	,, ,,												4. R					or o					w ~	3 6	244 245	ū	<b>,</b> –	
<b>រ</b> ហេហហហប	1000	ՄՄ	տ տ	տ տ	տ տ	i UT U	·	տ տ	<b>57</b> (	տ տ	UT U	лUП	மு	лU	տտ	. <b>.</b>	יטיי	un un	U U	лопо	лUnu	nonu	ינטי	лuп	տ տ	տւ	лопо	u u	տ ս	. 0. 0	nu	տ տ	יטיי	տ ս	ינטי	տտ	יטיטי	ח טז	טינ
																																	•					•	
	38	37	36 37	3 6	36 6	ω u 4 4	32	3 3 2 2	32	3 2 2	32	3 3 3	30	30	29	28	27	27 27	27	27	27	27	26	25	25 25	25	3 23 I	2 2 5 4	23	22	22	21	22	21	221	21	21	21	21
3990	10	9	9 10	10	oυ	10	10	10	9 (	ဖ ဖ	φ	oω	10	0 0	10	<b>6</b> 6	φ	99	φų	יטי	o	o vo v	10	٥,	10	y v	9 0 0	oφ	9 E	10	10	10	10	10	10	10	10 5	10	5
US-09-864-761-40994 0 US-09-864-761-47842 US-09-974-879-409 US-10-092-154-937 US-10-007-280A-208	US-09-864-761-33348	US-10-050-704-194 US-09-726-643-184	US-09-864-761-42356 US-10-042-141-184	US-09-864-761-36671 US-09-864-761-39941	US-09-994-595-128 US-09-809-391-400	US-09-864-761-48236	US-09-864-761-38821	US-10-054-611-136 US-09-220-920-117	US-10-054-295-136	US-09-438-486-136 US-10-053-758-136	US-09-766-253-136	US-09-843-676-136	US-09-864-761-41542	US-09-840-277-53	US-09-864-761-45206 US-09-864-761-47299	US-10-054-611-169 US-09-974-879-573	US-10-054-611-157	US-10-054-295-157 US-10-054-295-169	US-10-053-758-169	US-09-438-486-169	US-09-766-253-169	US-09-043-676-169	US-09-864-761-35286	US-09-402-131-8	US-09-810-310-45 US-09-864-761-40046	US-10-097-065-294	US-09-991-548-43	US-10-174-654-6 US-09-991-548-42	US-10-112-455A-10	US-09-226-248B-14	US-09-853-830-106	US-09-853-830-64 US-09-853-830-105	US-09-853-830-50	US-09-853-830-33	US-09-853-830-8	US-09-853-830-6 US-09-853-830-7	US-09-853-830-5	US-09-853-830-3	US-09-853-830-2
nce 40994, nce 47842, se 409, App se 937, App se 208, App	0000	ce 194, App	Sequence 42356,	Sequence 3 Sequence 3	quence 12 quence 40	Sequence	equence 3	equence 13 Sequence 1	equence 13	equence 13	ωΰ	equence 13	Sequence 4	Ce 53	ce 4520 ce 4729	equence 169, Appequence 573, App	equence 157,	equence 157, equence 169,	equence 169,	equence 169,	Sequence 15', App Sequence 169, App	equence 169,	Sequence 3528	equence 8,	Sequence 45, App Sequence 40046,	equence 25	quence 4	equence 6,	sequence 17, equence 10, .	quence 1	equence 106	equence 64, equence 105	equence 50,	equence 33,	equence 8,	Sequence 6, Appli Sequence 7, Appli	equence 5, App	equence 3,	equence 2, App
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	377	375	373 374	371 372	369 370	368	366	364 365	363	361 362	360	358	357	355	353	351	350	348 349	347	345	3 4 3 C		339	337	LJ LJ	334	3 3 3 5	330	N) N	327		N) N)	(4 (	ALA			-		_
88210	777	75	73 74	71 72	69 70	68	66	60 A 4 D	63	61 62	60	5 60	57	55	5 55 4 W	52	50	48 49	47		ν ω κ	<b>, ⊷</b> c	<b>.</b> .	8 7	35 36	34	3 K) I	-0	29	27	2 2 1	23	22	21	19	17 18	16	14	13
83 5 5 2 2 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	777 5 2.	76 5 2.	73 5 2. 74 5 2.	71 5 2. 72 5 2.	70 5 2. 70 5 2.	68 5 2.	5 2.	64 5 2. 65 5 2.	63 5 2.	61 5 2. 62 5 2.	60 5 2.	58	57 5 2.	55 5 2.	54 5 2.	52 5 2.	50 5 2.	48 5 2.	47 5 2.	n (1)	, U, U	n (5) (4)	101	s 7 s 5	35 5 2. 36 5 2.	5 2.	, w.	, to 2.	29 5 2.	27 5 2.	25.	5 2.	5 2.	21 5 2.	19 5 2 .	17 5 2. 18 5 2.	16 5 2.	5 2 .	13 5 2.
80 8 2 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	77 5 2.3 6	75 5 2.3 5	73 5 2.3 5	71 5 2.3 5 72 5 2.3 5	70 5 2.3 5	68 5 2.3 5	5 2.3 5	64 5 2.3 5 65 5 2.3 5	63 5 2.3	61 5 2.3 5 62 5 2.3 5	60 5 2.3 5	58 5 2.3 5	57 5 2.3 5	55 5 2.3 5	54 5 2.3	52 5 2.3 5	50 5 2.3 5	48 5 2.3 4 49 5 2.3 5	47 5 2.3 4	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 U U	7 (7)	155	7 5 2.3 4	35 5 2.3 4 36 5 2.3 4	34 5 2.3 4	5 (5) (5) (5) (5) (5) (5) (5) (5) (5) (5	0 5 2.3 4	29 5 2.3 4	27 5 2.3 4	25 5 2.3	23 5 2.3 4	22 5 2.3 4	21 5 2.3 4	19 5 2.3	17 5 2.3 4 18 5 2.3 4	16 5 2.3 4	14 5 2.3	13 5 2.3 3
80 5 2.3 60 11 81 5 2.3 60 11 82 5 2.3 61 11	77 5 2.3 60 9	76 5 2.3 59 1	73 5 2.3 59 10 74 5 2.3 59 10	71 5 2.3 59 9 72 5 2.3 59 9	69 5 2.3 58 10 70 5 2.3 59 9	68 5 2.3 58 10 58	66 5 2.3 57 1	64 5 2.3 56 10 65 5 2.3 57 10	63 5 2.3 56 9	61 5 2.3 54 10 62 5 2.3 54 10	60 5 2.3 54 9	58 5 2.3 54 9	57 5 2.3 53 10	55 5 2.3 52 10	53 5 2.3 51 10 54 5 2.3 52 10	52 5 2.3 50 16	50 5 2.3 50 1	48 5 2.3 49 10 49 5 2.3 50 10	46 5 2.3 47 II 47 5 2.3 48 II	45 5 2.3 47 1	3 5 2.3 47 1	5 2.3 47 9	5 2 3 4 6 1	7 5 2.3 45 10 8 5 2.3 46 9	35 5 2.3 45 10 36 5 2.3 45 10	34 5 2.3 45 10	5 2.3 45 10	0 5 2.3 44 10	28 5 2.3 44 10 29 5 2.3 44 10	27 5 2.3 44 10	25 5 2.3 43 10	23 5 2.3 43 10 24 5 2.3 43 10	22 5 2.3 43 10	20 5 2.3 43 9	15 2.3	17 5 2.3 42 10 18 5 2.3 43 9	16 5 2.3 42 9 16 5 2.3 42 9	114 5 2.3 40 9	13 5 2.3 39 10
80 5 2.3 60 11 81 5 2.3 60 11 82 5 2.3 61 11	77 5 2.3 60 9	76 5 2.3 59 1	73 5 2.3 59 10 74 5 2.3 59 10	71 5 2.3 59 9 72 5 2.3 59 9	69 5 2.3 58 10 70 5 2.3 59 9	68 5 2.3 58 10 58	66 5 2.3 57 1	64 5 2.3 56 10 65 5 2.3 57 10	63 5 2.3 56 9	61 5 2.3 54 10 62 5 2.3 54 10	60 5 2.3 54 9	58 5 2.3 54 9	57 5 2.3 53 10	55 5 2.3 52 10	53 5 2.3 51 10 54 5 2.3 52 10	52 5 2.3 50 16	50 5 2.3 50 1	48 5 2.3 49 10 49 5 2.3 50 10	46 5 2.3 47 II 47 5 2.3 48 II	45 5 2.3 47 1	3 5 2.3 47 1	5 2.3 47 9	5 2 3 4 6 1	7 5 2.3 45 10 8 5 2.3 46 9	35 5 2.3 45 10 36 5 2.3 45 10	34 5 2.3 45 10	5 2.3 45 10	0 5 2.3 44 10	28 5 2.3 44 10 29 5 2.3 44 10	27 5 2.3 44 10	25 5 2.3 43 10	23 5 2.3 43 10 24 5 2.3 43 10	22 5 2.3 43 10	20 5 2.3 43 9	100	17 5 2.3 42 10 18 5 2.3 43 9	16 5 2.3 42 9 16 5 2.3 42 9	14 5 2.3 40 9 US-10-042	13 5 2.3 39 10 US-09-76
80 5 2.3 60 1 81 5 2.3 60 1 82 5 2.3 61 1	77 5 2.3 60 9	76 5 2.3 59 1	73 5 2.3 59 10 74 5 2.3 59 10	71 5 2.3 59 9 72 5 2.3 59 9	69 5 2.3 58 10 70 5 2.3 59 9	68 5 2.3 58 10 58	66 5 2.3 57 1	64 5 2.3 56 10 65 5 2.3 57 10	63 5 2.3 56 9	61 5 2.3 54 10 62 5 2.3 54 10	60 5 2.3 54 9	58 5 2.3 54 9	57 5 2.3 53 10	55 5 2.3 52 10	53 5 2.3 51 10 54 5 2.3 52 10	52 5 2.3 50 16	50 5 2.3 50 1	48 5 2.3 49 10 49 5 2.3 50 10	46 5 2.3 47 II 47 5 2.3 48 II	45 5 2.3 47 1	3 5 2.3 47 1	5 2.3 47 9	5 2 3 4 6 1	7 5 2.3 45 10 8 5 2.3 46 9	35 5 2.3 45 10 36 5 2.3 45 10	34 5 2.3 45 10	5 2.3 45 10	0 5 2.3 44 10	28 5 2.3 44 10 29 5 2.3 44 10	27 5 2.3 44 10	25 5 2.3 43 10	23 5 2.3 43 10 24 5 2.3 43 10	22 5 2.3 43 10	20 5 2.3 43 9	100	17 5 2.3 42 10 18 5 2.3 43 9	16 5 2.3 42 9 16 5 2.3 42 9	14 5 2.3 40 9 US-10-042-141-94	13 5 2.3 39 10 US-09-764-847-937
80 5 2.3 60 10 US-09-864-761-45360 Sequ 81 5 2.3 60 10 US-09-864-761-34950 Sequ 82 5 2.3 61 10 US-09-864-761-34950 Sequ 83 5 2.3 61 10 US-09-864-761-34968 Sequ	77 5 2.3 60 9 US-09-764-904-43 Seque 78 5 2.3 60 9 US-10-091-548-43 Seque	75 5 2.3 59 10 US-09-864-761-38814 76 5 2 3 59 10 US-09-925-300-1316	73 5 2.3 59 10 US-09-864-761-35719 74 5 2.3 59 10 US-09-864-761-37468	71 5 2.3 59 9 US-09-796-692-1354 ( 72 5 2.3 59 9 US-09-796-692-2320 (	69	68 5 2.3 58 10 US-09-864-761-33415	66 5 2.3 57 10 US-09-864-761-42360	64	63 5 2.3 56 9 US-09-948-820-73	61 5 2.3 54 10 US-09-864-761-39008 62 5 2.3 54 10 US-09-864-761-48954	60 5 2.3 54 9 US-09-983-966-231	58 5 2.3 54 9 US-09-984-245-231	57 5 2.3 53 10 US-09-729-835-44	55 5 2.3 52 10 US-09-864-761-48716	53	51 5 2.3 50 10 US-U9-U71-838-167 52 5 2.3 51 10 US-U9-864-761-39450	50 5 2.3 50 10 US-09-864-761-46791	48 5 2.3 49 10 US-09-864-761-44784 49 5 2.3 50 10 US-09-864-761-44033	46 5 2.3 4/ 10 US-09-861-752A-266 47 5 2.3 48 10 US-09-864-761-47351	45 5 2.3 47 10 US-09-864-761-48973	3 5 2.3 47 10 US-09-864-761-34661	1 5 2.3 47 0 150-09-009-391-364	9 5 2.3 46 10 US-09-864-761-37334	7 5 2.3 45 10 US-09-925-299-1120	35 5 2.3 45 10 US-09-864-761-41747 36 5 2.3 45 10 US-09-864-761-42078	34 5 2.3 45 10 US-09-864-761-39258	2 5 2.3 45 10 US-09-864-761-35639	0 5 2.3 44 10 US-09-864-761-46624 1 5 2.3 45 9 US-09-925-299-1120	28 5 2.3 44 10 US-09-864-761-34453 29 5 2.3 44 10 US-09-864-761-36783	27 5 2.3 44 10 US-09-843-845-16	25 5 2.3 43 10 US-09-925-300-1031	23 5 2.3 43 10 US-09-864-761-37268 24 5 2.3 43 10 US-09-864-761-43844	22 5 2.3 43 10 US-09-843-845-21	20 5 2.3 43 9 US-U9-148-545-205 21 5 2.3 43 10 US-09-147-761-3	19 5 2.3 43 9 US-09-939-780-3	17 5 2.3 42 10 US-09-864-761-34791 18 5 2.3 43 9 US-09-981-876-205 S	16 5 2.3 42 9 US-09-776-724A-169 S	14 5 2.3 40 9 US-10-042-141-94 Se	13 5 2.3 39 10 US-09-764-847-937 Se
80 5 2.3 60 10 US-09-864-761-45360 Sequ 81 5 2.3 60 10 US-09-864-761-34950 Sequ 82 5 2.3 61 10 US-09-864-761-34950 Sequ 83 5 2.3 61 10 US-09-864-761-34968 Sequ	77 5 2.3 60 9 US-09-764-904-43 Sequence 78 5 2.3 60 9 US-10-091-548-43 Sequence	75 5 2.3 59 10 US-09-864-761-38814 Sequence	73 5 2.3 59 10 US-09-864-761-35719 Sequence	71 5 2.3 59 9 US-09-796-692-1354 Sequence 72 5 2.3 59 9 US-09-796-692-2320 Sequence	69 5 2.3 58 10 US-09-864-761-40365 Sequence 70 5 2.3 59 9 US-10-108-605-353 Sequence	68 5 2.3 58 10 US-09-864-761-33415	66 5 2.3 57 10 US-09-864-761-42360	64	63 5 2.3 56 9 US-09-948-820-73	61 5 2.3 54 10 US-09-864-761-39008 62 5 2.3 54 10 US-09-864-761-48954	60 5 2.3 54 9 US-09-983-966-231	58 5 2.3 54 9 US-09-984-245-231	57 5 2.3 53 10 US-09-729-835-44	55 5 2.3 52 10 US-09-864-761-48716	53	51 5 2.3 50 10 US-U9-U71-838-167 52 5 2.3 51 10 US-U9-864-761-39450	50 5 2.3 50 10 US-09-864-761-46791	48 5 2.3 49 10 US-09-864-761-44784 49 5 2.3 50 10 US-09-864-761-44033	46 5 2.3 4/ 10 US-09-861-752A-266 47 5 2.3 48 10 US-09-864-761-47351	45 5 2.3 47 10 US-09-864-761-48973	3 5 2.3 47 10 US-09-864-761-34279 Sequence	2.3 47 9 US-09-809-391-359 Sequence	9 5 2.3 46 10 US-09-864-761-37334 Sequence	7 5 2.3 45 10 US-09-925-299-1120 Sequence	35 5 2.3 45 10 US-09-864-761-41747 Sequence 36 5 2.3 45 10 US-09-864-761-42078 Sequence	34 5 2.3 45 10 US-09-864-761-39258 Sequence	2 5 2.3 45 10 US-09-864-761-35639 Sequence	0 5 2.3 44 10 US-09-864-761-46624 Seguence	28 5 2.3 44 10 US-09-864-761-34453 Sequen 29 5 2.3 44 10 US-09-864-761-36783 Sequen	20 2.3 44 10 US-09-843-845-16 Sequent	25 5 2.3 43 10 US-09-925-300-1031 Sequent	23 5 2.3 43 10 US-09-864-761-37268 Sequen 24 5 2.3 43 10 US-09-864-761-43844 Sequen	22 5 2.3 43 10 US-09-843-845-21 Sequen	20 5 2.3 43 9 05-09-148-545-205 sequence 21 5 2.3 43 10 US-09-147-761-3 Sequence	19 5 2.3 43 9 US-09-939-780-3 Sequence	17 5 2.3 42 10 US-09-864-761-34791 Sequence	16 5 2.3 42 9 US-09-776-724A-169 Sequence	14 5 2.3 40 9 US-10-042-141-94 Sequence 9	13 5 2.3 39 10 US-09-764-847-937 S
80 5 2.3 60 10 US-09-864-761-45360 Sequ 81 5 2.3 60 10 US-09-864-761-34950 Sequ 82 5 2.3 61 10 US-09-864-761-34950 Sequ 83 5 2.3 61 10 US-09-864-761-34968 Sequ	77 5 2.3 60 9 US-09-764-904-43 Sequence 4 78 5 2.3 60 9 US-10-091-548-43 Sequence 4	75 5 2.3 59 10 US-09-864-761-38814 Sequence	73 5 2.3 59 10 US-09-864-761-35719 Sequence	71 5 2.3 59 9 US-09-796-692-1354 Sequence 72 5 2.3 59 9 US-09-796-692-2320 Sequence	69 5 2.3 58 10 US-09-864-761-40365 Sequence 70 5 2.3 59 9 US-10-108-605-353 Sequence	68 5 2.3 58 10 US-09-864-761-33415 Sequence 33	66 5 2.3 57 10 US-09-864-761-42360 Sequence 42	64 5 2.3 56 10 US-09-779-451-76 Sequence 65 5 2.3 57 10 US-09-879-957-209 Sequence 6	63 5 2.3 56 9 US-09-948-820-73 Sequence 73,	61 5 2.3 54 10 US-09-864-761-39008 Sequence 39 62 5 2.3 54 10 US-09-864-761-48954 Sequence 48	60 5 2.3 54 9 US-09-983-966-231	58 5 2.3 54 9 US-09-984-245-231 Sequence 2:	57 5 2.3 53 10 US-09-729-835-44 Sequence	55 5 2.3 52 10 US-09-864-761-48716 Sequence	53	51 5 2.3 50 10 US-09-071-838-167 Sequence: 52 5 2.3 51 10 US-09-864-761-39450 Sequence:	50 5 2.3 50 10 US-09-864-761-46791 Sequence	48 5 2.3 49 10 US-09-864-761-44784 Seguence · 49 5 2.3 50 10 US-09-864-761-44033 Seguence ·	46 5 2.3 48 10 US-09-864-761-47351 Sequence 4	45 5 2.3 47 10 US-09-864-761-48973 Sequence 45 5 2.3 47 10 US-09-864-761-7823-289 Sequence 5 2 2 4 7 10 US-09-861-7823-289	3 5 2.3 47 10 US-09-864-761-34279 Sequence	2.3 47 9 US-09-809-391-359 Sequence 3	9 5 2.3 46 10 US-09-864-761-37334 Sequence	7 5 2.3 45 10 US-09-925-299-1120 Sequence	35 5 2.3 45 10 US-09-864-761-41747 Sequence 36 5 2.3 45 10 US-09-864-761-42078 Sequence	34 5 2.3 45 10 US-09-864-761-39258 Sequence	2 5 2.3 45 10 US-09-864-761-35639 Sequence	0 5 2.3 44 10 US-09-864-761-46624 Seguence	28 5 2.3 44 10 US-09-864-761-34453 Sequen 29 5 2.3 44 10 US-09-864-761-36783 Sequen	20 2.3 44 10 US-09-843-845-16 Sequent	25 5 2.3 43 10 US-09-925-300-1031 Sequent	23 5 2.3 43 10 US-09-864-761-37268 Sequen 24 5 2.3 43 10 US-09-864-761-43844 Sequen	22 5 2.3 43 10 US-09-843-845-21 Sequen	20 5 2.3 43 9 05-09-148-545-205 sequence 21 5 2.3 43 10 US-09-147-761-3 Sequence	19 5 2.3 43 9 US-09-939-780-3 Sequence	17 5 2.3 42 10 US-09-864-761-34791 Sequence	16 5 2.3 42 9 US-09-776-724A-169 Sequence 16	14 5 2.3 40 9 US-10-042-141-94 Sequence 94, F	13 5 2.3 39 10 US-09-764-847-937 Sequenc

						44	. 4	4 4 4 4 2 1	~ ~	· Lu	438	436	435	434	432	431	430	428 208	427	425 426	424	422	421	419	41 <i>/</i>	416	415	413	411	410	408	407	406	404 405	403	401	400	965	397	396	3 9 4 5 4	393	392	391	285 685	388	387
4 4 4 6 0 0 0 0 4 0 0 0 0	452	450	44.9	447	146	4 17	ັພ		_																																						
ហេហហ	თ თ	ı vı (	лU	ທ ທ	ı vı	ហហ	ı U	ហ ប	n US	υ	ហៈ	ຫ ຫ	י טי	ហប	лv	ı UT	UT U	ກ ບາ	ហៈ	лUI	σı	лU	տ ն	n Us	տ տ	ı (Ji	տ տ	າເກ	Մ։Մ	ı UT (	տ տ	ı vı	σı	տտ	ហ	<b>ഗ</b> ഗ	· Uī	ບາ ບ	n un	<b>U</b> T (	տ ս	n UT	ហ	տւ	лυ	υī	σı ·
2 2 2 2 3 3																																															
8 8 8 4 4 4	00 00 (1) ki	000	B 69	8 8	. 81	81	79	76	78	78	77	77	171	77	7.6	76	76	75	75	74	74	73 74	73	73	73	73	72	71	71	71	70	70	69	o o	68	67	66	6 6 6 6	n 60	65	<b>რ</b> მ	64	63	63	v 9	63	62
<b></b>	91	· (p)	ىر د	<b>و</b> بر	9	மு ப	بر،		بر د	· w	ب ب	ی م	φ	y y	ير ه	ر بير ،	ب ب	ب ہ	o i		<u>.</u> .	یا ہ	<u> </u>	<u> </u>	o c	۰		<u> </u>	<u>,</u> 9	ا ف		ی ب	6	9 1	9	<u>د</u> «	, ;	25	0 ب	<u> </u>	۳,		1	1,	ی م	9	н
្ត្រូវ ខ្លួ	SO C	US-	38	O US-	us-	-SD	g	g :		us-	gg	200	- - - -	200	SD LS	US.	gg	OUS SU	-Sn		Sn	SD (	US	us Su	US-	-SD		SUS	SD (	US-	us c	us-	us-	us-	us-	Sn -	Su	SD	-Sn	SD	SD	SUS	US	US	US-	-Sn	SD
-09-8	09-7	10-1	09-	-09-8	09-9	-09-7	-09-	-10-	-09-	10-0	-09-	9-90	10-1	09-7	-09-	-09-	-09-	-09-	10-0	-09-	-60-	-09-	-09-	-09-	8-60 T-01	10-1	-60-	-09-	-60-7	09-7	-60-	10-0	09-7	-09- 10-0	10-0	-60- 8-80	-09-	-60-	09-7	-60-	-60-	-09-	-09-	-09-	09-9	09-9	-10-
864- 867-	731-	02-8	864-	729-	74-8	864 - 38 - 6	864-	939- 158-	864-	16-1	864-	66-2 83-9	78-2	38-6	764-	864-	864-	764 -	92-1	764- 925-	864-	764-	867-	864-	78-2 09-3	78-2	864-	144-	96-6 739-	96-6	864-	11-4	92-7	764- 01-8	91-4	864-	764-	942-	38-6	996-	925-	925-	925-	864-	66-2	84-2	090-
US-09-843-221A-11 0 US-09-864-761-4657 0 US-09-867-550-1206	872-	06-7	761- 761-	50A-	79-5	761- 26-6	761-	366-	761-	57A-	761-	66-2	13-4	26-6	877-	761-	761-	847-	54-8	877-	761-	877-	550-	761-	91-5 91-5	13-5	761 -	838-	92-1 907-	92-1	907- 761-	45-7	93A-	846-: 35-1	83-1	31A-	877-	446-	26-5	194-	297	301-	301-	761-	62-2	45-2	-969
11 46572 1206	273 475	80	37861 44504	0A-490 74-80	71	34436 898	35205	5 C	34713	162	44275	73	37	6969	1436	44389	39803	334	34	.1504	17484	1680	306	37231	79		11955	3	000	01	15889		8	159	9	14 36413	1106	11	959	6	160	1410	159	18562	3 8	ລັ	
8 8 8	ω	S	o (o	 	S	. e	·ro	<b>50. F</b> (	n (n	Se	, , ,	ນແ	. S		0 70		ro d	0. 00	Se	.o. (ro		ממ	ເກເປ	ח נס	ა ი ი	Se	ແດແ	. <b>(</b> 0	: : :	. S	ທິດ	Se	Se	ທ	Se	9 0	o o	ນດນ	<u>ي</u> 00	່ເນີ	ຜູ	ຄນຄ	د	່ວ	2 0	Se	S
equence Sequence Sequence	equen	quen	seque	Sequence 490, App Sequence 80, Appl	quen	eque equen	eque	eque	eque	quen	eque	quen	quen	iguen Squen	eque	eque	eque	eque	quen	Sequence :	eque	eque	eube	eque	iquen	guen	Sequence	Sequence	equence	quen	Sequence	quen	quen	eque	Sequence 1	Sequence :	eque	Sequence	quen	eque	eque	eque	eque	eque	equence	quence	Sequence
ence lence	e e	ice 7	900	nce 4	ce 5	ce 6	nce	nce	nce	ce 1	nce	0 0 0 0 0	Ce 4	9 0	nce	nce	nce o	nce.	ce 8	nce	nce .	nce .	nce	nce	က ကြေ ကြေ	ce 5	nce .	nce	nce I	ce 1	nce .	ce 7:	ce 2	nce :	ce 1	nce :	nce	nce :	Ge 5	nce	nce .	nce .	nce :	nce '	) (C	ce 23	nce ;
11, A 4657	273, 475,	80,	3786:	80,	71,	3443 898,	3520	6, A,	3471	62,	4427	73,	37, 2	969,	1436,	44389	39803	834,	34, 1	ice 1504, Ap	17484	1680,	306, 1	37231	, APE 79, <i>1</i>	, Apr	11955	A.	000	501,	15885 15885	Ar.	Ar.	e 159, App 167. App	9	1, AÇ 36413	1106,	11, 7	359,	[6, 2	160.	1410,	159,	18562	5 Z	32, A	2, Aç
Appl 572, A 16, Ap	App	App ::	4 , 4 A	App Appl	dd.	A, A	 . ≯	App opli	γ, Α	day	5, A	dag	gg	ď ď	Ap	, A	3, 2 1	App	gg	a Ap	, t	Ąp	ddv	. P	d d	Ľ.	, . ⊳ ⊳	pli	Apo	Αp	App A	ğ	ğ.	App aga	dd	, P	φĀ	pp1	Ap	Ldd.	aga A	10, Ap	Αp	, ' <sub>7</sub>	gg	đđ,	ildd
																		·				•		,							_			-												-	
527 528 529	525 526	524	522	520 521	519	517 518	516	515	513	512	511	510	508	507	5005							,						486	485	483	481 482	480	479	477 478	7	474 475	473	472	470	469	. 468	466	465	464	462	. 461	460
27 28 29	26	24	22	20 21	19	17	16	15	13	12	11	10	8 8	07	0.5	504	503	501	500	498 499	497	495	494	492	490	489	488					80	79	77 78	76	75	. ω	20 F	-0	Φ.	ω、	<b>1</b> 0	· US	.44	<i>ω</i> κ.	_	0
27 5 2 28 5 2 29 5 2	26 5 2	15 2	22 . 5 . 2	21 5 2	19 5 2	17 5 2 18 5 2	16 5 2	15 5 2	13 5 2	12 5 2	11 5 2	109	08	07 5 2	05	504	503	501 5 2	500 5 2	498 5 2 499 5 2	497 5 2	495 5 2.	494 5 2	492 5 2.	490 5 2	489 5 2.	488 5 2	1 UI	51 51	101	συ 2. κ	5 2.	79 5 2.	77 5 2. 78 5 2.	76 5 2.	75 5 2.	155	5 0 2.	, m	55	5 2.	л л л л	5 5 2.	5 (2.	л (г	5 2.	0 5 2.
5 2.3 5 2.3 2.9	26 5 2.3	15 2 3	22 . 5 2.3	20 5 2.3	19 5 2.3	17 5 2.3 18 5 2.3	16 5 2.3	15 5 2.3	5 2.3	12 5 2.3	11 5 2.3	10 5 2.3	08 5 2.3	07 5 2.3	05 5 2.3	504 5 2.3	503 5 2.3	501 5 2.3	500 5 2.3	498 5 2.3 499 5 2.3	497 5 2.3	495 5 2.3	494 5 2.3	492 5 2.3	490 5 2.3	489 5 2.3	488 5 2.3	22.3	51 5 2.3	1 (J)	υ υ 2	80 5 2.3	79 5 2.3	77 5 2.3 78 5 2.3	76 5 2.3	75 5 2.3		5 2.3	л U	5 2 3	B	1 6 5 2.3	5 2.3	5 2.3	лс	5 2.3	0 5 2.3
27 5 2.3 113 9 28 5 2.3 113 9 29 5 2.3 113 9	25 5 2.3 111 5 26 5 2.3 113 5	5 2.3 111	22 .5 2.3 110 9	20 5 2.3 109 9	19 5 2.3 109 9	17 5 2.3 109 9	16 5 2.3 106 1	15 5 2.3 106 1	13 5 2.3 105 9	12 5 2.3 104 1	11 5 2.3 104 1	10 5 2.3 104 9	08 5 2.3 103 1	07 5 2.3 103 1	05 5 2,3 103 1	504 5 2.3 102 1	503 5 2.3 102 9	501 5 2.3 100 1	500 5 2.3 98 1	498 5 2.3 97 1 499 5 2.3 98 1	497 5 2.3 97 1	495 5 2.3 96 1	494 5 2.3 96 1	492 5 2.3 96 9	490 5 2.3 95 1	489 5 2.3 95 9	488 5 2.3 94 1	5 2.3 93 1	5 2.3 93 1	20.3	5 2.3 93 8	80 5 2.3 91 1	79 5 2.3 91 9	77 5 2.3 91 9 78 5 2.3 91 9	76 5 2.3 91 9	75 5 2.3 90 I	3 5 2.3 90 1	2 5 2.3 90 1	0 5 2.3 89 1	9 5 2.3 89 1	8 5 2.3 89 1	6 5 2.3 89 1 7 5 2.3 89 1	5 5 2.3 89 9	4 5 2.3 89 9	2 5 2 3 87 L	1 5 2.3 86 9	0 5 2.3 86 9
27 5 2.3 113 228 5 2.3 113 229 5 2.3 113 229	25 5 2.3 111 5 26 5 2.3 113 5	5 2.3 111	22 .5 2.3 110 9	20 5 2.3 109 9	19 5 2.3 109 9	17 5 2.3 109 9	16 5 2.3 106 1	15 5 2.3 106 1	13 5 2.3 105 9	12 5 2.3 104 1	11 5 2.3 104 1	10 5 2.3 104 9	08 5 2.3 103 1	07 5 2.3 103 1	05 5 2,3 103 1	504 5 2.3 102 1	503 5 2.3 102 9	501 5 2.3 100 1	500 5 2.3 98 1	498 5 2.3 97 1 499 5 2.3 98 1	497 5 2.3 97 1	495 5 2.3 96 1	494 5 2.3 96 1	492 5 2.3 96 9	490 5 2.3 95 1	489 5 2.3 95 9	488 5 2.3 94 1	5 2.3 93 1	5 2.3 93 1	20.3	5 2.3 93 8	80 5 2.3 91 1	79 5 2.3 91 9	77 5 2.3 91 9 78 5 2.3 91 9	76 5 2.3 91 9	75 5 2.3 90 I	3 5 2.3 90 1	2 5 2.3 90 1	0 5 2.3 89 1	9 5 2.3 89 1	8 5 2.3 89 1	6 5 2.3 89 1 7 5 2.3 89 1	5 5 2.3 89 9	4 5 2.3 89 9	2 5 2 3 87 L	1 5 2.3 86 9	0 5 2.3 86 9
527 5 2.3 113 9 US-09-76 528 5 2.3 113 9 US-09-76 529 5 2.3 113 9 US-09-96	25 5 2.3 111 5 26 5 2.3 113 5	5 2.3 111	22 .5 2.3 110 9	20 5 2.3 109 9	19 5 2.3 109 9	17 5 2.3 109 9	16 5 2.3 106 1	15 5 2.3 106 1	13 5 2.3 105 9	12 5 2.3 104 1	11 5 2.3 104 1	10 5 2.3 104 9	08 5 2.3 103 1	07 5 2.3 103 1	05 5 2,3 103 1	504 5 2.3 102 1	503 5 2.3 102 9	501 5 2.3 100 1	500 5 2.3 98 1	498 5 2.3 97 1 499 5 2.3 98 1	497 5 2.3 97 1	495 5 2.3 96 1	494 5 2.3 96 1	492 5 2.3 96 9	490 5 2.3 95 1	489 5 2.3 95 9	488 5 2.3 94 1	5 2.3 93 1	5 2.3 93 1	20.3	5 2.3 93 8	80 5 2.3 91 1	79 5 2.3 91 9	77 5 2.3 91 9 78 5 2.3 91 9	76 5 2.3 91 9	75 5 2.3 90 I	3 5 2.3 90 1	2 5 2.3 90 1	0 5 2.3 89 1	9 5 2.3 89 1	8 5 2.3 89 1	6 5 2.3 89 1 7 5 2.3 89 1	5 5 2.3 89 9	4 5 2.3 89 9	2 5 2 3 87 L	1 5 2.3 86 9	0 5 2.3 86 9
27 5 2.3 113 228 5 2.3 113 229 5 2.3 113 229	25 5 2.3 111 5 26 5 2.3 113 5	5 2.3 111	22 .5 2.3 110 9	20 5 2.3 109 9	19 5 2.3 109 9	17 5 2.3 109 9	16 5 2.3 106 1	15 5 2.3 106 1	13 5 2.3 105 9	12 5 2.3 104 1	11 5 2.3 104 1	10 5 2.3 104 9	08 5 2.3 103 1	07 5 2.3 103 1	05 5 2,3 103 1	504 5 2.3 102 1	503 5 2.3 102 9	501 5 2.3 100 1	500 5 2.3 98 1	498 5 2.3 97 1 499 5 2.3 98 1	497 5 2.3 97 1	495 5 2.3 96 1	494 5 2.3 96 1	492 5 2.3 96 9	490 5 2.3 95 1	489 5 2.3 95 9	488 5 2.3 94 1	5 2.3 93 1	5 2.3 93 1	20.3	5 2.3 93 8	80 5 2.3 91 1	79 5 2.3 91 9	77 5 2.3 91 9 78 5 2.3 91 9	76 5 2.3 91 9	75 5 2.3 90 I	3 5 2.3 90 1	2 5 2.3 90 1	0 5 2.3 89 1	9 5 2.3 89 1	8 5 2.3 89 1	6 5 2.3 89 1 7 5 2.3 89 1	5 5 2.3 89 9	4 5 2.3 89 9	2 5 2 3 87 L	1 5 2.3 86 9	0 5 2.3 86 9
27 5 2.3 113 228 5 2.3 113 229 5 2.3 113 229	25 5 2.3 111 5 26 5 2.3 113 5	5 2.3 111	22 .5 2.3 110 9	20 5 2.3 109 9	19 5 2.3 109 9	17 5 2.3 109 9	16 5 2.3 106 1	15 5 2.3 106 1	13 5 2.3 105 9	12 5 2.3 104 1	11 5 2.3 104 1	10 5 2.3 104 9	08 5 2.3 103 1	07 5 2.3 103 1	05 5 2,3 103 1	504 5 2.3 102 1	503 5 2.3 102 9	501 5 2.3 100 1	500 5 2.3 98 1	498 5 2.3 97 1 499 5 2.3 98 1	497 5 2.3 97 1	495 5 2.3 96 1	494 5 2.3 96 1	492 5 2.3 96 9	490 5 2.3 95 1	489 5 2.3 95 9	488 5 2.3 94 1	5 2.3 93 1	5 2.3 93 1	20.3	5 2.3 93 8	80 5 2.3 91 1	79 5 2.3 91 9	77 5 2.3 91 9 78 5 2.3 91 9	76 5 2.3 91 9	75 5 2.3 90 I	3 5 2.3 90 1	2 5 2.3 90 1	0 5 2.3 89 1	9 5 2.3 89 1	8 5 2.3 89 1	6 5 2.3 89 1 7 5 2.3 89 1	5 5 2.3 89 9	4 5 2.3 89 9	2 5 2 3 87 L	1 5 2.3 86 9	0 5 2.3 86 9
27 5 2.3 113 9 28 5 2.3 113 9 29 5 2.3 113 9	25 5 2.3 111 5 26 5 2.3 113 5	5 2.3 111	22 .5 2.3 110 9	20 5 2.3 109 9	19 5 2.3 109 9	17 5 2.3 109 9	16 5 2.3 106 1	15 5 2.3 106 1	13 5 2.3 105 9	12 5 2.3 104 1	11 5 2.3 104 1	10 5 2.3 104 9	08 5 2.3 103 1	07 5 2.3 103 1	05 5 2,3 103 1	504 5 2.3 102 1	503 5 2.3 102 9	501 5 2.3 100 1	500 5 2.3 98 1	498 5 2.3 97 1 499 5 2.3 98 1	497 5 2.3 97 1	495 5 2.3 96 1	494 5 2.3 96 1	492 5 2.3 96 9	490 5 2.3 95 1	489 5 2.3 95 9	488 5 2.3 94 1	5 2.3 93 1	5 2.3 93 1	20.3	5 2.3 93 8	80 5 2.3 91 1	79 5 2.3 91 9	77 5 2.3 91 9 78 5 2.3 91 9	76 5 2.3 91 9	75 5 2.3 90 I	3 5 2.3 90 1	2 5 2.3 90 1	0 5 2.3 89 1	9 5 2.3 89 1	8 5 2.3 89 1	6 5 2.3 89 1 7 5 2.3 89 1	5 5 2.3 89 9	4 5 2.3 89 9	2 5 2 3 87 L	1 5 2.3 86 9	0 5 2.3 86 9
27 5 2.3 113 9 US-09-764-868-868 28 5 2.3 113 9 US-09-764-868-1179 29 5 2.3 113 9 US-09-966-262-233	25 5 2.3 111 10 US-09-263-959-349 Se 26 5 2.3 113 9 US-09-984-245-233 Se	24 5 2.3 111 9 US-09-974-879-559 Se	22 .5 2.3 110 9 US-09-774-639-112	20 5 2.3 109 9 US-10-091-504-1060 21 5 2.3 109 10 US-09-764-869-1060	19 5 2.3 109 9 US-09-969-730-165	17	16 5 2.3 106 10 US-09-846-258-5	14 5 2.3 106 9 05-10-102-808-732 15 5 2.3 106 10 US-09-739-907-195	13 5 2.3 105 9 US-09-738-626-3791	12 5 2.3 104 10 US-09-764-848-28	11 5 2.3 104 10 US-09-834-795A-2	09	08 5 2.3 103 10 US-09-815-242-12920	07 5 2.3 103 10 US-09-815-242-12246	05 5 2.3 103 10 US-09-216-393-135	504 5 2.3 102 10 US-09-864-761-36927	503 5 2.3 102 9 US-09-738-626-4790	501 5 2.3 100 10 US-09-893-238-126	500 5 2.3 98 10 US-09-864-761-35850	498 5 2.3 97 10 US-09-764-877-1526	497 5 2.3 97 10 US-09-925-302-792	495 5 2.3 96 10 US-09-263-959-1201	494 5 2.3 96 10 US-09-764-877-1656	492 5 2.3 96 9 US-09-764-868-871	490 5 2.3 95 10 US-09-864-761-42585	489 5 2.3 95 9 US-09-866-050A-378	48/ 5 2.3 94 10 US-10-141-534-4 488 5 2.3 94 10 US-09-739-707-2	5 2.3 93 10 US-09-939-980-340	5 2.3 93 10 US-09-867-550-590	5 2.3 93 9 US-10-102-806-616	5 2.3 93 8 US-08-424-550B-19	80 5 2.3 91 10 US-09-864-761-43047	79 5 2.3 91 9 US-10-091-504-1239 Se	77 5 2.3 91 9 US-09-738-626-4813 78 5 2.3 91 9 US-09-983-802-162	76 5 2.3 91 9 US-10-042-431-32 S	74 5 2.3 90 10 US-U9-939-960-262 86 75 5 2.3 91 9 US-10-002-344A-195 S6	3 5 2.3 90 10 US-09-858-664A-12 8	2 5 2.3 90 10 US-09-925-302-526	0 5 2.3 89 10 US-09-334-954A-6	5 2.3 89 10 US-09-834-795A-34	8 5 2.3 89 10 US-09-334-923A-6	6 5 2.3 89 10 US-09-864-761-34424	5 5 2.3 89 9 US-09-834-794A-34 S	4 5 2.3 89 9 US-10-027-629-17 St	2 5 2.3 87 10 US-U9-867-550-1648	1 5 2.3 86 9 US-09-938-806A-3	0 5 2.3 86 9 US-09-938-806A-2
27 5 2.3 113 9 US-09-764-868-868 Seque 28 5 2.3 113 9 US-09-764-868-1179 Seque 29 5 2.3 113 9 US-09-966-262-233 Seque	25 5 2.3 111 10 US-09-263-959-349 segue 5 2.3 113 9 US-09-984-245-233 Segue	24 5 2.3 111 9 US-09-974-879-559 Seque	22 5 2.3 110 9 US-09-774-639-112 Segue 23 5 2.3 110 10 HS-09-864-761-47631 Segue	20 5 2.3 109 9 US-10-091-504-1060 Seque 21 5 2.3 109 10 US-09-764-869-1060 Seque	19 5 2.3 109 9 US-09-969-730-165 Seque	17 5 2.3 109 9 US-09-764-868-795 Seques	16 5 2.3 106 10 US-09-846-258-5 Seque	19 5 2.3 106 9 US-10-102-000-732 Sequents 5 2.3 106 10 US-09-739-907-195 Sequents	13 5 2.3 105 9 US-09-738-626-3791 Seguet	12 5 2.3 104 10 US-09-764-848-28 Seque	11 5 2.3 104 10 US-09-834-795A-2 Seque	09 5 2.3 104 9 US-10-116-016-28 Sequen	08 5 2.3 103 10 US-09-815-242-12920 Seque	07 5 2.3 103 10 US-09-815-242-12246	05 5 2.3 103 10 US-09-216-393-135	504 5 2.3 102 10 US-09-864-761-36927	503 5 2.3 102 9 US-09-738-626-4790	501 5 2.3 100 10 US-09-893-238-126	500 5 2.3 98 10 US-09-864-761-35850	498 5 2.3 97 10 US-09-764-877-1526	497 5 2.3 97 10 US-09-925-302-792	495 5 2.3 96 10 US-09-263-959-1201	494 5 2.3 96 10 US-09-764-877-1656	492 5 2.3 96 9 US-09-764-868-871	490 5 2.3 95 10 US-09-864-761-42585	489 5 2.3 95 9 US-09-866-050A-378	48/ 5 2.3 94 10 US-10-141-534-4 488 5 2.3 94 10 US-09-739-707-2	5 2.3 93 10 US-09-939-980-340	5 2.3 93 10 US-09-867-550-590	5 2.3 93 9 US-10-102-806-616	5 2.3 93 8 US-08-424-550B-19	80 5 2.3 91 10 US-09-864-761-43047	79 5 2.3 91 9 US-10-091-504-1239 Se	77 5 2.3 91 9 US-09-738-626-4813 78 5 2.3 91 9 US-09-983-802-162	76 5 2.3 91 9 US-10-042-431-32 S	74 5 2.3 90 10 US-U9-939-960-262 86 75 5 2.3 91 9 US-10-002-344A-195 S6	3 5 2.3 90 10 US-09-858-664A-12 8	2 5 2.3 90 10 US-09-925-302-526	0 5 2.3 89 10 US-09-334-954A-6	5 2.3 89 10 US-09-834-795A-34	8 5 2.3 89 10 US-09-334-923A-6	6 5 2.3 89 10 US-09-864-761-34424	5 5 2.3 89 9 US-09-834-794A-34 S	4 5 2.3 89 9 US-10-027-629-17 St	2 5 2.3 87 10 US-U9-867-550-1648	1 5 2.3 86 9 US-09-938-806A-3	0 5 2.3 86 9 US-09-938-806A-2
27 5 2.3 113 9 US-09-764-868-868 Seque 28 5 2.3 113 9 US-09-764-868-1179 Seque 29 5 2.3 113 9 US-09-966-262-233 Seque	25 5 2.3 111 10 US-09-263-959-349 segue 5 2.3 113 9 US-09-984-245-233 Segue	24 5 2.3 111 9 US-09-974-879-559 Seque	22 5 2.3 110 9 US-09-774-639-112 Segue 23 5 2.3 110 10 HS-09-864-761-47631 Segue	20 5 2.3 109 9 US-10-091-504-1060 Seque 21 5 2.3 109 10 US-09-764-869-1060 Seque	19 5 2.3 109 9 US-09-969-730-165 Seque	17 5 2.3 109 9 US-09-764-868-795 Seques	16 5 2.3 106 10 US-09-846-258-5 Seque	19 5 2.3 106 9 US-10-102-000-732 Sequents 5 2.3 106 10 US-09-739-907-195 Sequents	13 5 2.3 105 9 US-09-738-626-3791 Seguet	12 5 2.3 104 10 US-09-764-848-28 Seque	11 5 2.3 104 10 US-09-834-795A-2 Seque	09 5 2.3 104 9 US-10-116-016-28 Sequen	08 5 2.3 103 10 US-09-815-242-12920 Seque	07 5 2.3 103 10 US-09-815-242-12246 Sequence	05 5 2.3 103 10 US-09-216-393-135 Seguent	504 5 2.3 102 10 US-09-864-761-36927 Sequence	503 5 2.3 102 9 US-09-738-626-4790	501 5 2.3 100 10 US-09-893-238-126	500 5 2.3 98 10 US-09-864-761-35850	498 5 2.3 97 10 US-09-764-877-1526	497 5 2.3 97 10 US-09-925-302-792	495 5 2.3 96 10 US-09-263-959-1201	494 5 2.3 96 10 US-09-764-877-1656	492 5 2.3 96 9 US-09-764-868-871	490 5 2.3 95 10 US-09-864-761-42585	489 5 2.3 95 9 US-09-866-050A-378	48/ 5 2.3 94 10 US-10-141-534-4 488 5 2.3 94 10 US-09-739-707-2	5 2.3 93 10 US-09-939-980-340	5 2.3 93 10 US-09-867-550-590	5 2.3 93 9 US-10-102-806-616	5 2.3 93 8 US-08-424-550B-19	80 5 2.3 91 10 US-09-864-761-43047	79 5 2.3 91 9 US-10-091-504-1239 Sequence	77 5 2.3 91 9 US-09-738-626-4813 Sequence	76 5 2.3 91 9 US-10-042-431-32 Sequence	74 5 2.3 90 10 05-09-939-980-262 Sequence 75 5 2.3 91 9 05-10-002-344A-195 Sequence	3 5 2.3 90 10 US-09-858-664A-12 Sequence	2 5 2.3 90 10 US-09-925-302-526 Sequence	0 5 2.3 89 10 US-09-334-954A-6 Seguenc	9 5 2.3 89 10 US-09-834-795A-34 Sequence	8 5 2.3 89 10 US-09-334-923A-6 Sequence	6 5 2.3 89 10 US-09-864-761-34424 Seguence.	5 5 2.3 89 9 US-09-834-794A-34 Sequence 3	4 5 2.3 89 9 US-10-027-629-17 Sequence 1	2 5 2.3 89 9 IIS-10-127-516-17 Sequence 1	1 5 2.3 86 9 US-09-938-806A-3 Sequence 3	0 5 2.3 86 9 US-09-938-806A-2 Sequence 2.
27 5 2.3 113 9 US-09-764-868-868 28 5 2.3 113 9 US-09-764-868-1179 29 5 2.3 113 9 US-09-966-262-233	25 5 2.3 111 10 US-09-263-959-349 segue 5 2.3 113 9 US-09-984-245-233 Segue	24 5 2.3 111 9 US-09-974-879-559 Seque	22 5 2.3 110 9 US-09-774-639-112 Segue 23 5 2.3 110 10 HS-09-864-761-47631 Segue	20 5 2.3 109 9 US-10-091-504-1060 seque 21 5 2.3 109 10 US-09-764-869-1060 Sequ	19 5 2.3 109 9 US-09-969-730-165 Seque	17 5 2.3 109 9 US-09-764-868-795 Seques	16 5 2.3 106 10 US-09-846-258-5 Seque	19 5 2.3 106 9 US-10-102-000-732 Sequents 5 2.3 106 10 US-09-739-907-195 Sequents	13 5 2.3 105 9 US-09-738-626-3791 Seguet	12 5 2.3 104 10 US-09-764-848-28 Seque	11 5 2.3 104 10 US-09-834-795A-2 Seque	09 5 2.3 104 9 US-10-116-016-28 Sequen	08 5 2.3 103 10 US-09-815-242-12920 Seque	07 5 2.3 103 10 US-09-815-242-12246 Sequence	05 5 2.3 103 10 US-09-216-393-135 Seguent	504 5 2.3 102 10 US-09-864-761-36927 Sequence	503 5 2.3 102 9 US-09-738-626-4790	501 5 2.3 100 10 US-09-893-238-126	500 5 2.3 98 10 US-09-864-761-35850	498 5 2.3 97 1 499 5 2.3 98 1	497 5 2.3 97 10 US-09-925-302-792	495 5 2.3 96 10 US-09-263-959-1201	494 5 2.3 96 10 US-09-764-877-1656	492 5 2.3 96 9 US-09-764-868-871	490 5 2.3 95 10 US-09-864-761-42585	489 5 2.3 95 9 US-09-866-050A-378	48/ 5 2.3 94 10 US-10-141-534-4 488 5 2.3 94 10 US-09-739-707-2	5 2.3 93 10 US-09-939-980-340	5 2.3 93 10 US-09-867-550-590	5 2.3 93 9 US-10-102-806-616	5 2.3 93 8 US-08-424-550B-19	80 5 2.3 91 10 US-09-864-761-43047	79 5 2.3 91 9 US-10-091-504-1239 Sequence	77 5 2.3 91 9 US-09-738-626-4813 sequenc 78 5 2.3 91 9 US-09-983-802-162 Sequenc	76 5 2.3 91 9 US-10-042-431-32 Sequence	74 5 2.3 90 10 05-09-939-980-262 Sequence 75 5 2.3 91 9 05-10-002-344A-195 Sequence	3 5 2.3 90 10 US-09-858-664A-12 Sequence	2 5 2.3 90 10 US-09-925-302-526 Sequence	0 5 2.3 89 10 US-09-334-954A-6 Seguenc	9 5 2.3 89 10 US-09-834-795A-34 Sequence	8 5 2.3 89 10 US-09-334-923A-6 Sequence	6 5 2.3 89 10 US-09-864-761-34424	5 5 2.3 89 9 US-09-834-794A-34 Sequence 3	4 5 2.3 89 9 US-10-027-629-17 Sequence 1	2 5 2.3 89 9 IIS-10-127-516-17 Sequence 1	1 5 2.3 86 9 US-09-938-806A-3 Sequence	0 5 2.3 86 9 US-09-938-806A-2 Sequence 2.

	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	576 577 578 578 578 578 578 578 578 578 578	562 566 566 566 566 568 569 571 572 572	5 6 7 6 7 8 7 9 9 8 7 9 9 8 7 9 9 8 7 9 9 9 9	531 532
ហេហេហេហេហេហេហេហេហេ	ហហហហហហហហ	ា ហ ហ ហ ហ ហ ហ ហ ហ ហ	ហហហហហហហហហហហហហ	<b>ﯨ</b> Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს Ს	ហហ
136 137 137 137 139 139 140 141 141 141	13221131131	127 130 130 130 130 130	123 124 125 125 125 127 127 127 127	1114 1114 1115 1115 1116 1117 1119 1119 1119 1119 1119 1119	113 113
99910	9 10 10 10	1122999990			9 1
US-09-738-626-6718 US-09-929-493-20 US-09-867-550-24 US-09-867-550-24 US-09-867-550-21 US-09-864-641-2 US-09-864-641-2 US-09-796-692-1310 US-09-796-692-1310 US-09-796-692-2301	US-09-815-242-10458 US-09-815-242-13858 US-09-825-414-58 US-09-881-811-2 US-09-840-787-38 US-09-866-582-33 US-09-781-811-4 US-09-781-811-4 US-09-738-626-6471	US-09-931-381A-2 US-09-898-751A-10 US-10-060-845-11 US-10-060-845-12 US-10-060-845-13 US-10-102-806-695 US-10-072-159-11 US-10-072-159-13 US-10-072-159-13	US-10-043-487-333 US-10-101-464A-567 US-90-796-692-1301 US-90-796-692-2292 US-90-864-761-39406 US-90-887-751A-6 US-90-884-794A-1 US-10-146-496-2 US-10-146-496-2 US-09-811-284-222 US-09-811-284-222 US-09-811-284-222 US-09-811-250-1666	US-09-866-050A-161 US-09-866-050A-288 0 US-09-864-761-45709 US-09-718-626-6211 US-10-091-572-229 US-10-091-504-1052 US-10-091-504-1052 US-10-091-504-1052 US-10-091-504-1052 US-10-091-504-1052 US-10-091-804-809-73 US-09-789-390-73 US-09-789-390-73 US-09-789-390-73 US-09-789-393-30 US-09-789-393-30 US-09-789-868-74 0 US-09-868-761-46706 0 US-09-868-761-46706 0 US-09-764-877-1108 US-09-983-802-285 US-09-983-802-235	US-09-983-966-233 US-09-764-847-678
Sequence 6718, Applisequence 6, Applisequence 524, Applisequence 31, Applisequence 31, Applisequence 31, Applisequence 1310, Applisequence 1783, Applisequence 2051, A	Sequence 13458, A Sequence 13858, A Sequence 58, Appl Sequence 2, Appl Sequence 38, Appl Sequence 33, Appl Sequence 4, Appli Sequence 4, Appli	Sequence 2, Appli Sequence 11, Appl Sequence 11, Appl Sequence 12, Appl Sequence 13, Appl Sequence 685, App Sequence 11, Appl Sequence 11, Appl Sequence 12, Appl Sequence 13, Appl	Sequence 333, App Sequence 567, App Sequence 2592, Ap Sequence 2592, Ap Sequence 2596, App Sequence 39406, A Sequence 6, Appli Sequence 1, Appli Sequence 2, Appli Sequence 2, Appli Sequence 2, Appli Sequence 27, Appli Sequence 27, Appli Sequence 27, Appli Sequence 27, Appli Sequence 27, Appli	quence 15: quence 4: quence 62: quence 62: quence 10: equence 10: equence 10: equence 10: equence 73: quence 6: equence 4. quence 4. quence 4. quence 6: equence 4. quence 6: equence 6: quence 6: quence 6: equence 10: equence 10: equence 10: equence 10: equence 10: equence 10: quence 20: quence 20	e 233
				· · · · · · · · · · · · · · · · · · ·	
666 666 669 671 673 673 675	5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	649 6551 6553 6555 6555	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	600 600 600 600 600 600 600 600 600 600	604 605
				606 608 609 611 611 611 611 611 611 611 611 611 61	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ภ พ พ พ พ พ พ พ พ	ហហហហហហហហហ	, , , , , , , , , , , , , , , , , , ,		ரு சூ
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , , , , , , , , , , , , , ,	55 55 2.2 2.3
5 2.3 163 10 5 2.3 163 10 5 2.3 165 9 5 2.3 166 9 5 2.3 166 10 5 2.3 166 11 5 2.3 166 11 5 2.3 168 9 5 2.3 168 9	5 2.3 161 10 5 2.3 161 10 5 2.3 162 9 5 2.3 162 9 5 2.3 162 10 5 2.3 162 10 5 2.3 163 1	5 2.3 158 9 5 2.3 159 9 5 2.3 159 10 5 2.3 159 11 5 2.3 160 10 5 2.3 160 10	5 2.3 155 10 5 2.3 155 10 5 2.3 156 9 5 2.3 156 9 5 2.3 156 9 5 2.3 156 10 5 2.3 156 11 5 2.3 156 11 5 2.3 157 9 5 2.3 157 9 5 2.3 158 9	5 2.3 143 9 5 2.3 143 9 5 2.3 143 9 5 2.3 143 9 5 2.3 143 9 5 2.3 145 9 6 5 2.3 146 10 6 7 2.3 146 9 6 7 2.3 149 9 6 7 2.3 150 9 6 7 2.3 150 9 7 2.3 150 9 7 2.3 150 150 150 150 150 150 150 150 150 150	5 2.3 142 9 5 2.3 143 9
5 2.3 163 10 5 2.3 163 10 5 2.3 165 9 5 2.3 166 9 5 2.3 166 10 5 2.3 166 11 5 2.3 166 11 5 2.3 168 9 5 2.3 168 9	5 2.3 161 10 5 2.3 161 10 5 2.3 162 9 5 2.3 162 9 5 2.3 162 10 5 2.3 162 10 5 2.3 163 1	5 2.3 158 9 5 2.3 159 9 5 2.3 159 10 5 2.3 159 11 5 2.3 160 10 5 2.3 160 10	5 2.3 155 10 5 2.3 155 10 5 2.3 156 9 5 2.3 156 9 5 2.3 156 9 5 2.3 156 10 5 2.3 156 11 5 2.3 156 11 5 2.3 157 9 5 2.3 157 9 5 2.3 158 9	5 2.3 143 143 143 144 145 146 146 156 156 156 156 156 156 156 156 156 15	5 2.3 142 9 5 2.3 143 9

741 7443 7443 746 746 748	736 737 738 739 740	730 731 732 733 734	725 726 727 727 728	720 721 722 723	715	708 708 709 710 711 711	700 700 700 700 700 700 700 700 700	00000000000000000000000000000000000000	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	677
ហ ហ ហ ហ ហ ហ ហ ហ ហ	កហហហហហហ	ា ហា ហា ហា ហា ហា ហា <sub>។</sub>	ហហហហហ	ហេហហហហ	រសេសហហហ	ហហហហហហហ	រហេហហហហហ	ភពហហហហ	ហេហៈហេហហ	ា ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ	лUI
											າ ເວ ນ ເມ
179 179 179 179 179 179 179	178 178 178 178 179	177 177 177 177 177	176 176 176 176	176 176 176	176 176 176 176	176 176 176 176 176	175 175 176 176 176	173 173 173 173 174	172 172 172 172 172	168 168 169 169 170 170 170	168
νονουουο	991199	10	91999	νουου	νουουοι	νουουου		100	100	10 9 9 10 12 12 12 12 12 12 12 12 12 12 12 12 12	01.
US-19-965-528-18 US-10-950-5528-2 US-09-738-626-4399 US-09-738-626-4719 US-10-063-616-154 US-10-131-241-57 US-10-063-502-154 US-10-027-884-244 US-10-027-884-244 US-10-002-796-126	US-10-131-241-00 US-10-131-807-5 US-09-363-993-5 US-09-782-980-6 US-10-066-500-126 US-10-063-547-154	US-09-854-133-208 US-09-815-242-12000 US-09-800-729-186 US-09-738-973-202 US-09-738-973-208	US-10-141-755-98 US-09-983-966-191 US-10-143-032-98 US-09-746-359A-1 US-09-854-113-202	US-10-230-210 US-09-966-262-191 US-10-123-262-98 US-10-124-423-98 US-10-230-414-218 US-10-121-050-98	US-10-14-114-98 US-10-230-163-218 US-10-230-163-218 US-10-140-002-98 US-10-142-419-98 US-10-218-631-218	US-10-140-470-98 US-10-175-746-98 US-10-176-918-98 US-10-176-91-98 US-10-176-921-98 US-10-127-884-218 US-10-137-865-98 US-10-140-474-98 US-10-140-474-98	US-09-738-626-3818 US-10-101-464A-653 US-09-984-245-191 US-10-028-072-98 US-10-121-049-98 US-10-123-904-98 US-10-123-904-98	US-10-135-807-3 US-09-816-494-7 US-09-815-419-4 US-09-939-980-476 US-09-939-980-476 US-09-809-391-424 US-09-809-391-4564	US-09-7/9-050A-1/ US-10-042-431-27 US-10-042-431-74 US-09-816-494-8 US-09-925-301-894 US-09-815-419-5	US-10-082-2604 US-10-095-492-25 US-09-738-626-5504 US-09-729-674-56 US-09-864-761-48249 US-10-078-770-8 US-10-078-771-8 US-10-026-741-96 US-10-026-741-96 US-09-771-161A-124	US-09-879-919-4
Sequence 2, Appl Sequence 2, Appli Sequence 4399, Ap Sequence 4719, Ap Sequence 154, App Sequence 57, Appl Sequence 154, Appl Sequence 244, Apple Sequence 244, Apple Sequence 126, Apple	sequen sequen sequen sequen equen	Sequence 208, App Sequence 12000, A Sequence 186, App Sequence 202, App Sequence 208, App	Sequence 98, Appl Sequence 191, App Sequence 98, Appl Sequence 1, Appli Sequence 202, App	Sequence 191, Appl Sequence 98, Appl Sequence 98, Appl Sequence 218, Appl Sequence 218, Appl	Sequence 98, Appl Sequence 218, Appl Sequence 98, Appl Sequence 98, Appl Sequence 218, Appl Sequence 218, Appl	Sequence 98, Appl Sequence 98, Appl Sequence 98, Appl Sequence 218, Appl Sequence 218, Appl Sequence 98, Appl Sequence 98, Appl	Sequence 3816, App Sequence 653, App Sequence 191, App Sequence 98, Appl Sequence 98, Appl Sequence 98, Appl Sequence 98, Appl		Sequence 17, Appl Sequence 27, Appl Sequence 74, Appl Sequence 8, Appli Sequence 894, App Sequence 5, Appli	Sequence	equence 4,
	h• h•									NO. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	
						780 781 781 782 783 784 785	773 774 775 776 777 778	767 768 769 770 771	761 763 764 765	755 753 753 756 758 758 760	750
	800 811 813	988888888 90054	798 799 800 801	793 794 796 797	787 788 789 790 791			767 768 769 5 770 5 772 5	0,012200	752 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	750 S
814 815 816 817 817 818 818 820 820 821 5 2 822 5 2	810 9 9 5 2 2 3 3 5 5 2 2 3 3 5 5 2 2 3 3 5 5 2 2 3 3 5 5 3 2 3 3 3 5 5 5 2 3 3 3 5 5 5 5	803 804 805 5 2 807 5 2 2 2 3	799 5 2 2 802 5 2 2 2 3 2 2 3 2 3 2 3 2 3 2 3 2 3	793 5 2. 794 5 2. 796 5 2. 797 5 2.	789 5 2. 789 5 2. 790 5 2. 791 5 2.	๛๛๛๛๛๛๛๛	, , , , , , , , , , , , , , , , , , ,	<i>๛๛๛๛๛</i> ๛๛๛๛๛๛	$\sigma$		J U
814 815 816 817 5 2.3 819 5 2.3 819 5 2.3 820 5 2.3 821 5 2.3 821 5 2.3 821 5 2.3 821 5 2.3	810 9 5 2.3 811 5 2.3 812 5 2.3	803 804 805 5 2.3 806 5 2.3 5 2.3	798 5 2.3 799 5 2.3 800 5 2.3 801 5 2.3 802 5 2.3	793 5 2.3 794 5 2.3 796 5 2.3 797 5 2.3	789 5 2.3 789 5 2.3 790 5 2.3 791 5 2.3	w w w w w w w w w w w w w w w w w w w	, , , , , , , , , , , , , , , , , , ,	ស	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	, , , , , , , , , , , , , , , , , , ,	л 5 2.3
814 5 2.3 194 9 815 5 2.3 194 1 816 5 2.3 195 9 817 5 2.3 195 9 819 5 2.3 196 9 820 5 2.3 196 9 821 5 2.3 196 9 822 5 2.3 196 9	809 5 2.3 193 1 810 5 2.3 194 9 811 5 2.3 194 9 812 5 2.3 194 9 813 5 2.3 194 9	803 5 2.3 191 9 804 5 2.3 193 9 805 5 2.3 193 19 806 5 2.3 193 1 807 5 2.3 193 1	798 5 2.3 187 1 799 5 2.3 187 1 800 5 2.3 187 1 801 5 2.3 190 9 802 5 2.3 190 9	793 5 2.3 185 11 794 5 2.3 185 1 795 5 2.3 186 9 796 5 2.3 186 9	787 5 2.3 183 11 788 5 2.3 183 11 789 5 2.3 183 11 790 5 2.3 183 11 790 5 2.3 184 11 790 5 2.3 184 11	5 2.3 182 11 5 2.3 182 11 5 2.3 182 1 5 2.3 183 9 5 2.3 183 9 5 2.3 183 9	5 2.3 181 1 5 2.3 181 1 5 2.3 181 1 5 2.3 181 1 5 2.3 182 1 5 2.3 182 1 7 2.3 182 1	5 2.3 180 9 5 2.3 181 9	5 2.3 179 10 5 2.3 179 10 5 2.3 179 10 5 2.3 179 10 5 5 2.3 179 10	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 2.3 179 9 5 2.3 179 9
814 5 2.3 194 9 815 5 2.3 194 1 816 5 2.3 195 9 817 5 2.3 195 9 819 5 2.3 196 9 820 5 2.3 196 9 821 5 2.3 196 9 822 5 2.3 196 9	809 5 2.3 193 1 810 5 2.3 194 9 811 5 2.3 194 9 812 5 2.3 194 9 813 5 2.3 194 9	803 5 2.3 191 9 804 5 2.3 193 9 805 5 2.3 193 19 806 5 2.3 193 1 807 5 2.3 193 1	798 5 2.3 187 1 799 5 2.3 187 1 800 5 2.3 187 1 801 5 2.3 190 9 802 5 2.3 190 9	793 5 2.3 185 11 794 5 2.3 185 1 795 5 2.3 186 9 796 5 2.3 186 9	787 5 2.3 183 11 788 5 2.3 183 11 789 5 2.3 183 11 790 5 2.3 183 11 790 5 2.3 184 11 790 5 2.3 184 11	5 2.3 182 11 5 2.3 182 11 5 2.3 182 1 5 2.3 183 9 5 2.3 183 9 5 2.3 183 9	5 2.3 181 1 5 2.3 181 1 5 2.3 181 1 5 2.3 181 1 5 2.3 182 1 5 2.3 182 1 7 2.3 182 1	5 2.3 180 9 5 2.3 181 9	5 2.3 179 10 5 2.3 179 10 5 2.3 179 10 5 2.3 179 10 5 5 2.3 179 10	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 2.3 179 9 5 2.3 179 9

, 2 8 8 2 8	887 889 990	8 8	8 8 8	88	8 7	77	77	7	<b>7</b> 7	7	76	000	$\sigma$	. 6	ש ע	9	001	տ տ	UT U	ı UI	υū	пU	UT U	<b>4.</b> R	4	4	4.4	4	4 4	4	4	w	837	w	wι	ں د	·	·	w	N	N	2	s r	3 6	S
រាហហហហ	រាហហហ	ហហ	ហហ	ហហ	ហហ	ហហ	ហហ	ທ່ເ	лυ	ហៈ	יט יט	יטינ	n un	ហេប	л UT	יטי	וטות	ຫຫ	ຫບ	ισι	տս	nψ	ហប	л (л	s.	υnu	n Un	ۍ.	υnυ	n un	UT (	u u	n un	UT I	y r	л U	n un	· UT	ហ	U	ហ	UT L	лU	ı u	п
																																	•			•									
211	210	208	208	208	206	205	205 205	205	204	203	203	203	202	202	201	201	201	201	200	199	199	199	199	199	199	199	198	. 198	197	197	196	196	196	196	196	196	196	196	196	196	196	196	106	1 2 6	100
νουου	° 10	10	10	9 9	10	10	9 10	9 1	, ,	10	10	9 4	0 10	10	10	10	φι	φφ	10	12	10	10	10	و د	9	ع 0	10	10	10	o o	10	ωv	oυ	9	y Q	ט מ	φ	· ·	9	9	9	<b>9</b> 4	ט פ	v	D 1
US-09-978-192A-270 US-09-978-192A-270 US-09-99-832A-270 US-09-738-626-6578 US-09-738-626-6578	US-09-765-272-36 US-09-935-390A-36 US-09-731-872-387	US-09-027-287-39 US-09-252-656B-39	US-09-925-302-629 US-09-815-242-11425	US-09-738-626-6147 US-10-156-275-72	US-09-873-546-10 US-09-815-242-11988	US-09-877-156-5 IIS-09-782-980-41	US-09-738-626-3602 US-09-014-348-11	US-10-025-367-2	US-09-252-150-15	US-09-764-864-1120	US-09-846-729A-5	US-10-177-916-3	US-09-908-664-14	US-09-846-729A-16	US-09-846-729A-1	US-09-014-348-7	US-09-746-660A-84	US-10-226-408-1 US-10-177-916-1	US-09-995-593A-2	US-10-025-676-7	US-09-/31-909A-2	US-09-764-853-850	US-09-953-260-2	US-10-125-540-489	US-09-738-626-4672	US-09-858-664A-9 US-09-738-626-4417	US-09-925-301-1184	US-09-799-848-5	US-10-101-464A-491	US-09-738-626-4953	US-09-764-870-396	US-10-123-540-356 US-10-143-032-168	US-10-141-755-168	US-10-121-050-168	US-10-142-423-168	US-10-131-362-168	US-09-791-279-196	US-10-142-419-168	US-10-140-002-168	US-10-143-114-168	US-10-142-431-168	US-10-140-474-168	VS-10-176-921-168	891-816-971-05	110-10-176-010-160
Sequence 270, App Sequence 270, App Sequence 270, App Sequence 270, App Sequence 6578, Ap	Sequence Sequence	Sequence 39, Ap	Sequence	Sequence 6147, A			Sequence 3602, Ap Sequence 11, Appl	equence 2					Sequence	Sequence 16, Ap		Sequence r		equence	sequence	Sequence	sequence 28, App Sequence 28, Ap	Sequence 850, A	Sequence 2, App	equence	Sequence 4672, A	ence	rence	nce	ence				Sequence 168, Ap												
																			***							-																			_
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	962 962 962	959	956	990	952	950 951	948 949	947	945	944	942	941	939	938	936	935	933	931 200	930	928	926 927	925	924	922	921	920	918	917	916 918	914	913	912	910	909	908	906	905	904	903	902	901	900	8 9 8	897	0 (
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																																													
964 5 5 2.3 965 5 2.3 966 7 5 2.3	ា ហ ហ ហ រ ស ស ស	55 55 55 55 55 55 55 55 55 55 55 55 55	տտ	л (n )	ភ ហ ( > > !	л u	55 22	υπ υ 22 .	л vi	5 2.	л UI V N	5 5 5	ກ ທ ນ 2.	υ υ Ν	ກທ	5 2 .	1 UT (	л <b>เ</b> л	υπ υ 2	ı . Э. 2.	ຫ ບ	1 51 2 2.	55 0	ກຫ	5 2.	 	1 UI	5 2.	л 0	າ ຫ ວ ພ	5 2 .	υπu	n Un	<b>5</b> 100	ຫ່	лu	י יי	· UT	υī	σ	<b>υ</b> (	JIU	n U	י ני	л
	ាហេហហ ខេត្តប ខេត្តប ខេត្តប	5 2 2 3 3	5 5 C	л (л ( ) , , , , , , , , , , , , , , , , , , ,	л (л ( ) ) , , , , , ,	л (л ) 2. 13	5 5 2.2 	5 0 2.3	л 5 3 2 3 3 3	5 2.3	л (л () () () ()	5 2	n ທ ນ ຄ.ພ	5 2 . 3	n 01	5 2.3	າ ຫ ເ ວ ພ ເ	л (л () () () ()	υ υ 2.υ	5 2.3	5 2.3	5 2.3	5 2.3	ກ ເກ ນ ເນ ນ ເນ	5 2.3	л v 2. v	1 UI	5 2.3	л U	າ ທ ວ ພ	5 2.3	5 0 4.3	2 2 3	5 2 2 3	5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	ກ ປ ນ ພ.	າ ທ ວ ເວ ວ ເວ	5 2.3	5 2.3	5 2.3	5 2.3	л u	n (r ) (.	) () () ()	л ( ) (
5 2.3 211 9 US- 5 2.3 211 9 US- 5 2.3 211 9 US- 5 2.3 211 9 US- 5 2.3 211 9 US- 7 23 211 9 US-	5 2.3 211 9 US-10-187-596- 5 2.3 211 9 US-10-187-745- 5 2.3 211 9 US-10-187-885-	5 2.3 211 9 US-10-184-652 5 2.3 211 9 US-10-187-594-	5 2.3 211 9 US-10-184-647- 5 2.3 211 9 US-10-184-647-	5 2.3 211 9 US-10-184-635- 5 2.3 211 9 US-10-184-637-	5 2.3 211 9 US-10-184-614- 5 2.3 211 9 US-10-184-623-	5 2.3 211 9 US-10-183-010- 5 2.3 211 9 US-10-183-012-	5 2.3 211 9 US-10-180-559- 5 2.3 211 9 US-10-181-000-	5 2.3 211 9 US-10-180-555-	5 2.3 211 9 US-10-180-547-	5 2.3 211 9 US-10-180-546-	5 2.3 211 9 US-10-180-544-	5 2.3 211 9 US-10-179-510-	5 2.3 211 9 US-10-176-925-	5 2.3 211 9 US-10-176-919-	5 2.3 211 9 US-10-176-756-	5 2.3 211 9 US-10-176-493-	5 2.3 211 9 US-10-176-485-	5 2.3 211 9 US-10-175-747-	5 2.3 211 9 US-10-174-586- 5 2.3 211 9 US-10-174-586-	5 2.3 211 9 US-10-174-576-	5 2.3 211 9 US-10-173-69/-	5 2.3 211 9 US-10-173-695-	5 2.3 211 9 US-10-184-658-	5 2.3 211 9 US-10-176-992-	5 2.3 211 9 US-10-176-991-	5 2.3 211 9 US-10-176-987-	5 2.3 211 9 US-10-176-750-	5 2.3 211 9 US-10-176-747-	5 2.3 211 9 US-10-176-488-	5 2.3 211 9 US-10-175-743-	5 2.3 211 9 US-10-175-740-	5 2.3 211 9 US-10-175-739-	5 2.3 211 9 US-10-174-582-	5 2.3 211 9 US-10-174-579-	5 2.3 211 9 US-10-174-572-	5 2.3 211 9 US-10-180-55/-	5 2.3 211 9 US-10-180-552-	5 2.3 211 9 US-10-176-913-	5 2.3 211 9 US-10-176-757-	5 2.3 211 9 US-10-176-482-	5 2.3 211 9 US-10-175-752-	5 2.3 211 9 US-10-175-738-	5 2.3 211 9 US-10-175-737-	5 2.3 211 9 US-10-176-758-	5 3 3 311 0 IIC_10_176_758.

```
RESULT 1

US-10-101-464A-551

Sequence 551, Application US/10101464A

Publication No. US20030046728A1

Publication No. US20030046728A1

GENERAL INFORMATION:

APPLICANT: Strabala, Timothy
APPLICANT: Nieuwenhuizen, Nicolaas
APPLICANT: Nieuwenhuizen, Nicolaas
APPLICANT: Higgins, Colleen M.

TITLE OF INVENTION: Compositions Isolated from Plant Cells
TITLE OF INVENTION: and Their Use in the Modification of Plant Cells
FILE REFERENCE: 11000, 1020c2

CURRENT APPLICATION NUMBER: US/10/101,464A

CURRENT APPLICATION NUMBER: US/10/101,464A

CURRENT APPLICATION NUMBER: 09/704,302

PRIOR APPLICATION NUMBER: 09/704,302

PRIOR FILING DATE: 1999-01-12

PRIOR APPLICATION NUMBER: 09/1228,986

PRIOR FILING DATE: 1999-11-01

PRIOR APPLICATION NUMBER: 06/162,866

PRIOR APPLICATION NUMBER: PCT/US00/00724

PRIOR APPLICATION NUMBER: PCT/US00/00724

PRIOR APPLICATION SEQ ID NOS: 989

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 551

LENGTH: 151

TYPE: PRT
                                                                                       ; TYPE: PRT
; ORGANISM: Eucalyptus
US-10-101-464A-551
밁
                                           Query Match
Best Local S
Matches 7
52
                    39
                                         Local Similarity
mes 7; Conserv
                    AKEAILK 45
AKEAILK 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                        3.2%; Score 7; DB 9
100.0%; Pred. No. 24;
7ative 0; Mismatches
                                                                                                  grandis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-180-542-102
US-10-180-599-102
US-10-180-999-102
US-10-183-013-102
US-10-184-612-102
US-10-184-612-102
US-10-184-622-102
US-10-184-622-102
US-10-184-622-102
US-10-184-629-102
US-10-184-630-102
US-10-184-631-102
US-10-184-631-102
US-10-184-630-102
US-10-184-630-102
US-10-184-630-102
US-10-184-651-102
US-10-184-651-102
US-10-187-598-102
US-10-187-598-102
US-10-187-600-102
US-10-187-601-102
US-10-187-601-102
US-10-187-603-102
US-10-187-603-102
US-10-187-603-102
US-10-187-603-102
US-10-187-741-102
US-10-187-741-102
US-10-187-745-102
US-10-187-745-102
US-10-187-745-102
US-10-187-745-102
US-10-187-745-102
US-10-187-745-102
US-10-187-745-102
US-10-187-745-102
US-10-187-753-102
                                                                9
                                                               Length 151;
                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence
                                           0;
                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        102,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102,
102,
102,
102,
102,
102,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  102,
102,
102,
102,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 3
US-09-738-973-37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 2
US-09-854-133-37
                                                                                                                                                                                                                                                                                                                                                                                       ; Sequence 37, Application U; Patent No. US20020110563A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                     밁
                                        á
                                                                 Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170 LNSGSVL 176
                                           170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16 LNSGSVL 22
                     16
                     LNSGSVL
                                                                                                                                                                                                                                                                                                                                             Henderson, Rober
Lodes, Michael J
Fling, Steven P.
                                                                  Conservative
                     22
                                                                                                                                                                                                                                                                                                                                                                                 Steven G.
```

Ś

0

```
APPLICANT: Lodes, Michael J.
APPLICANT: Lodes, Michael J.
APPLICANT: Henderson, Robert A.
APPLICANT: Henderson, Darin R.
APPLICANT: Benson, Darin R.
APPLICANT: Secrist, Heather
ITILE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUFILE REFERENCE: 210121.475C10
CURRENT APPLICATION NUMBER: US/09/854,133
CURRENT FILING DATE: 2001-05-11
NUMBER OF SEQ ID NOS: 735
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 37
LENGTH: 238
TYPE: PAT
ORGANISM: Homo sapien
US-09-854-133-37
                                                                                  APPLICANT: Algate, Paul A.
APPLICANT: Secrist, Heather
APPLICANT: Secrist, Heather
APPLICANT: Individs, Carol Yoseph
APPLICANT: Elliot, Mark
APPLICANT: Elliot, Mark
APPLICANT: Mannion, Jane
APPLICANT: Malos, Michael D.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUN
FILE REFERENCE: 210121.475C9
CURRENT APPLICATION NUMBER: US/09/738,973
CURRENT FILING DATE: 2000-12-14
NUMBER OF SEQ ID NOS: 587
SOFTMARE: FastSEQ for Windows Version 3.0
SEQ ID NO 37
LENGTH: 238
TYPE: PRT
GRGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 37, Application US/09854133; Publication No. US20020183499A1; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match 3.2%; Score 7; DB: Best Local Similarity 100.0%; Pred. No. 37, Matches 7; Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mohamath, Raodoh
Algate, Paul A.
Secrist, Heather
Indirias, Carol Y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/09738973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Robert
3.2%; Score 7; DB: 100.0%; Pred. No. 37 :ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 9;
                         DB 1
5. 37;
                                            10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OF LUNG CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 238;
  0
                                            Length 238;
                                                                                                                                                                                                                                                                                                                     LUNG CANCER
    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
    Gaps
```

```
APPLICANT: Benson, Darin R.

APPLICANT: Secrist, Heather
TITLE OP INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUNG CANCER
FILE REFERENCE: 210121.475C10
CURRENT APPLICATION NUMBER: US/09/854,133
CURRENT FILING DATE: 2001-05-11
NUMBER OF SEQ ID NOS: 735
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 42
LENGTH: 243
TYPE: PRT
OGRAVISM: Homo sapien
US-09-854-133-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Benson, Darin R.

APPLICANT: Secrist, Heather

TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR

TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUNG CANCER

FILE REPERENCE: 210121.475C10

CURRENT APPLICATION NUMBER: US/09/854,133

CURRENT FILING DATE: 2001-05-11

NUMBER OF SEO ID NOS: 735

SOFTWARE: FASTSEQ for Windows Version 3.0

SEQ ID NO 39

LENGTH: 243

TYPE: PAT

ORGANISM: Homo sapien

US-09-854-133-39
                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity 1
                                                                                                                                          RESULT 6
US-09-738-973-39
                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-09-854-133-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-854-133-39
; Sequence 39, Application US/09854133
; Publication No. US20020183499A1
  Sequence 39, Application US/09738973
Patent No. US20020110563A1
GENERAL INFORMATION:
APPLICANT: Reed, Steven G.
APPLICANT: Henderson, Robert A.
APPLICANT: Ledes, Michael J.
APPLICANT: Fling, Steven P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Lodes, Michael J.
APPLICANT: Mohamath, Raodoh
APPLICANT: Henderson, Rober
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 42, Application US/09854133 Publication No. US20020183499A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Lodes, Michael J. APPLICANT: Mohamath, Raodoh APPLICANT: Henderson, Rober
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      170 LNSGSVL 176
                                                                                                                                                                                                                                                              170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Local Similarity 100.0%; Score 7; 1 hes 7; Conservative ^. "
                                                                                                                                                                                                                         21 LNSGSVL 27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30 LNSGSVL 36
Reed, Steven G.
Henderson, Robert A.
Lodes, Michael J.
Fling, Steven P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mohamath, Raodoh
Henderson, Robert A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mohamath, Raodoh
Henderson, Robert A.
                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                 3.2%; Score 7; DB 9
100.0%; Pred. No. 38;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 243;
                                                                                                                                                                                                                                                                                                                                        Length 243
                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
CURRENT APPLICATION NUMBER: US/09/738,973
CURRENT FILING DATE: 2000-12-14
NUMBER OF SEQ ID NOS: 587
SOFTWARE: FASUSEQ for Windows Version 3.0
SEQ ID NO 39
LENGTH: 243
TYPE: PRT
ORGANISM: Homo sapien
밁
                                                                                                                         ; LENGTH: 243
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-738-973-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-738-973-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-738-973-39
                                                                                                                                                                                      CURRENT APPLICATION NUMBER: US/09/738,973
CURRENT FILING DATE: 2000-12-14
NUMBER OF SEQ ID NOS: 587
SOFTWARE: FASTSEQ for Windows Version 3.0
SEQ ID NO 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 42, Application US/09738973 Patent No. US20020110563A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local Similarity
Matches 7; Conserv
                                                            Best Local Similarity
Matches 7; Conserva
                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Mannion, Jane
APPLICANT: Kalos, Michael D.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF
FILE REFERENCE: 210121.475C9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                      APPLICANT: Mannion, Jane
APPLICANT: Kalos, Michael D.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF
FILE REFERENCE: 210121.475C9
                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                            170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              170 LNSGSVL 176
21 LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30 LNSGSVL 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                    Secrist, Heather
Indirias, Carol Yoseph
                                                                                                                                                                                                                                                                                                                                                    Benson, Darin R.
Elliot, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                    Algate, Paul A.
                                                                                                                                                                                                                                                                                                                                                                                                                                 Mohamath, Raodoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lodes, Michael
Fling, Steven F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Henderson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Benson, Darin R.
Elliot, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Secrist, Heather
Indirias, Carol Yoseph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mohamath, Raodoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Algate, Paul A
                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Steven G.
                                                                                                                                                                                                          for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Steven P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%; Score 7; DB 10;
100.0%; Pred. No. 38;
vative 0; Mismatches
                                                            100.0%; P
tive 0;
                                                                            3.2%; Score 7; 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Þ
                                                             Mismatches
                                                                           DB 10;
o. 38;
                                                                                           Length 243;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                            0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 243;
                                                                                                                                                                                                                                                                                        LUNG CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LUNG CANCER
                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

RESULT 8 US-09-854-133-43 ; Sequence 43, Application US/09854133 ; Publication No. US20020183499A1

```
CURRENT APPLICATION NUMBER: US/09/854,133;
CURRENT FILING DATE: 2001-05-11;
NUMBER OF SEQ ID NOS: 735;
SOFTWARE: FastSEQ for Windows Version 3.0;
SEQ ID NO 43;
LENGTH: 244;
TYPE: PRT
RCANISM: Homo sapien
US-09-854-133-43
                                                                                                                                                         US-09-738-973-43; Sequence 43, Application US/09738973; Patent No. US20020110563A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                               US-09-854-133-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-854-133-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: 2101.21.475C10
CURRENT APPLICATION NUMBER: US/09/854,133
CURRENT FILING DATE: 2001-05-11
NUMBER OF SEQ ID NOS: 735
SOFTWARE: FAST-SEQ for Windows Version 3.0
SEQ ID NO 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 46, Application US/09854133 Publication No. US20020183499A1 GENERAL INFORMATION:
                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Lodes, Michael J.
APPLICANT: Mohamath, Raodoh
APPLICANT: Henderson, Robert
APPLICANT: Benson, Darin R.
APPLICANT: Secrist, Heather
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Benson, Darin R.
APPLICANT: Secrist, Heather
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF
FILE REFERENCE: 210121.475C10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Henderson, Robert A.
APPLICANT: Benson, Darin R.
APPLICANT: Secrist, Heather
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Lodes, Michael J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                       APPLICANT:
                                                        APPLICANT:
                                                                          APPLICANT:
                                                                                         APPLICANT:
       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM: Homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH: 244
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                       170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                          Local Similarity
nes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22 LNSGSVL 28
                                                                                                                                                                                                                                                                        22 LNSGSVL 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 100.0%; I
7; Conservative 0;
Reed, Steven G.
Henderson, Robert A.
Lodes, Michael J.
Fling, Steven P.
Mohamath, Raodoh
Algate, Paul A.
Secrist, Heather
Indirias, Carol Yoseph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mohamath, Raodoh
Henderson, Robert A.
                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                    3.2%; suc
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%; Score 7; DB !
100.0%; Pred. No. 38 |
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                          Score 7; DB 9; Pred. No. 38; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                            DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OF LUNG CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OF LUNG CANCER
                                                                                                                                                                                                                                                                                                                                                                           Length 244;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 244;
                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ٥,
```

```
CURRENT APPLICATION NUMBER: US/09/738,973
CURRENT FILING DATE: 2000-12-14
NUMBER OF SEQ ID NOS: 587
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 43
LENGTH: 244
TYPE: PRT
ORGANISM: Homo sapien
US-09-738-973-43
                                                                                                                                                                                                                                                       ; LENGTH: 244
; TYPE: PRT
; ORGANISM: Homo sapien
US-09-738-973-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 11
US-09-738-973-46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                        Query Match
Best Local Similarity
Thes 7; Conserva
                                                     US-09-854-133-40
                                                                   RESULT 12
Sequence 40, Application US/09854133 Publication No. US20020183499A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                      SOFTWARE: F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 46,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Mannion, Jane
APPLICANT: Kalos, Michael D.
APPLICANT: Kalos, Michael D.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUNG CANCER
FILE REFERENCE: 210121.475C9
FILE REFERENCE: 210121.475C9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION NUMBER: US/09/738,973
CURRENT FILING DATE: 2000-12-14
NUMBER OF SEQ ID NOS: 587
                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Mannion, Jane
APPLICANT: Kalos, Michael D.
TITLE OF INVENTION: COMPOSITIONS AND METHODS F
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS
FILE REFERENCE: 210121.475C9
FILE REFERENCE: 210121.475C9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                        170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Jocal Similarity 100.0%; tocal Similarity 100.0%; 105 7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            22 LNSGSVL
                                                                                                                       22
                                                                                                                       LNSGSVL 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US20020110563A1
                                                                                                                                                                                                                                                                                                                                         FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Benson, Darin R.
Elliot, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mohamath, Raodoh
Algate, Paul A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Elliot, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Secrist, Heather
Indirias, Carol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Henderson,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/09738973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lodes, Michael J.
                                                                                                                                                                                       3.2%; Score 7; DB 10; Length 244; ilarity 100.0%; Pred. No. 38; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Steven G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Steven P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Darin R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Robert A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Yoseph
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 7; DB 10;
Pred. No. 38;
                                                                                                                                                                                                                                                                                                                                                                                                                          FOR
S OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 244;
                                                                                                                                                                                                                                                                                                                                                                                                                              LUNG
                                                                                                                                                                                                                                                                                                                                                                                                                              CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                           0
```

APPLICANT: Lodes, Michael J. APPLICANT: Mohamath, Raodoh APPLICANT: Henderson, Robert A.

```
APPLICANT: Secrist, Heather
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUNG CANCER
FILE REFERENCE: 210121.475C10
CURRENT APPLICATION NUMBER: US/09/854,133
CURRENT FILING DATE: 2001-05-11
NUMBER OF SEQ ID NOS: 735
SOFTWARE: FASTSEQ for Windows Version 3.0
SEQ ID NO 40
LENGTH: 245
TYPE: PRT
ORGANISM: Homo sapien
US-09-854-133-40
                                                RESULT 14
US-09-815-242-11873
US-09-815-242-11873; Sequence 11873, Application US/09815242
; Patent No. US20020061569A1
; GRNERAL INFORMATION:
; APPLICANT: Haselbeck, Robert
; APPLICANT: Haselbeck, Robert
                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 13
US-09-738-973-40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                     ; ORGANISM: Homo sapien US-09-738-973-40
                                                                                                                                                                                                                                                                    Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                  PILE REFERENCE: 210121.475C9
CURRENT APPLICATION NUMBER: US/09/738,973
CURRENT FILING DATE: 2000-12-14
NUMBER OF SEQ ID NOS: 587
SOFTWARE: FastSEQ for Windows Version 3.9
SEQ ID NO 40
LENGTH: 245
                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 40, Application US/09738973 Patent No. US20020110563A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity
Matches 7; Conserv
               APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Mannion, Jane
APPLICANT: Kalos, Michael D.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR
TITLE OF INVENTION: THE THERAPY AND DIAGNOSIS OF LUNG CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                        TYPE: PRT
                                                                                                                                                                                                                                 170 LNSGSVL 176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 170 LNSGSVL 176
                                                                                                                                                                                                                                                                  Local Similarity 100 hes 7; Conservative
                                                                                                                                                                                                   23 LNSGSVL 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   23 LNSGSVL 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                       FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mohamath, Raodoh
Algate, Paul A
             Ohlsen, Kari L.
Zyskind, Judith W.
Wall, Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Benson, Darın
Elliot, Mark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Secrist, Heather
Indirias, Carol Yoseph
Benson, Darin R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Henderson, Robert
Lodes, Michael J.
Fling, Steven P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Benson, Darin R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Reed, Steven G.
Trawick, John D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.2%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                             3.2%; but
100.0%; Pr
                                                                                                                                                                                                                                                                Score 7; DB 10; ; Pred. No. 38; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 7; DB 9; Pred. No. 38; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                  Length 245;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 245;
                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels
                                                                                                                                                                                                                                                                ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
APPLICANT: Omura, Mitsuo
APPLICANT: Inagaki, Tomoko
APPLICANT: Matsumoto, Ryoji
APPLICANT: Matsumoto, Ryoji
APPLICANT: Matsumoto, Ryoji
APPLICANT: Matsumoto, Ryoji
APPLICANT: Matsumoto, Takaya
APPLICANT: Suhayda, Charles
TITLE OF INMENTION: UDP-D-Glucose:Limonoid Glucosyltransferase
FILE REFERENCE: 0119.98
CURRENT FILING DATE: 2001-01-31
PRIOR APPLICATION NUMBER: US/09/773,882
CURRENT FILING DATE: 2001-01-31
PRIOR APPLICATION NUMBER: JP 2000-021179
PRIOR APPLICATION SUMBER: JP 2000-021179
PRIOR FILING DATE: 2000-01-31
NUMBER OF SEQ ID NOS: 13
SOPTWARE: Patentin version 3.0
SEQ ID NO 4
멍
                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local Similarity
""" hes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-773-882-4

; ORGANISM: Pseudomonas aeruginosa
US-09-815-242-11873
                                                                                                                                                                US-09-773-882-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT FILING DATE: 2001-03-21
PRIOR APPLICATION NUMBER: 60/191,078
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-05-23
PRIOR FILING DATE: 2000-05-26
PRIOR FILING DATE: 2000-05-26
                                                           Query Match
Best Local Similarity 100.
6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQ ID NO 11873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 4, Application US/09773882 Patent No. US20020106769A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NUMBER: 60/257,931
PRIOR FILING DATE: 2000-12-22
PRIOR APPLICATION NUMBER: 60/269,308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 60/242,578
PRIOR FILING DATE: 2000-10-23
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR FILING DATE: 2000-11-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Yamamoto, Robert T.
APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokaryotes
                                                                                                                                                                            LENGTH: 14
TYPE: PRT
ORGANISM: Citrus unshiu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 14110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION NUMBER: 60/2 PRIOR FILING DATE: 2001-02-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116 QAAVIĻĻ 122
                                      97 TPVGDG 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63 QAAVILL
  9
TPVGDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FastSEQ for Windows Version 4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carr, Grant J.
14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%; Score 7; llarity 100.0%; Pred. No. Conservative 0; Mismatcl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        69
                                                                          2.8%; Score 6; 1
100.0%; Pred. No.
tive 0; Mismatc
                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10;
5. 47;
                                                                                                    DB 10;
). 26;
                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 311;
                                                                                                                     Length 14;
                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
```

0;

```
В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; LENGTH: 15
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-976-674-61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 16
US-09-976-674-61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 61, Application U Patent No. US20020115843A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ ID NO 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION NU
PRIOR FILING DATE: 2
PRIOR APPLICATION NU
PRIOR FILING DATE: 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -09-864-761-41312
Sequence 41312, Application US/09864761
Patent No. US20020048763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: US 60/240,117
PRIOR PILING DATE: 2000-10-12
NUMBER OF SEQ ID NOS: 61
SOFTWARE: Patanta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: 70669
CURRENT APPLICATION NUMBER: US/09/976,674
CURRENT FILING DATE: 2001-10-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Qi, Steve APPLICANT: Akinsanya
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Junien, Jean-Louis
TITLE OF INVENTION: NOVEL SERINE PROTEASE GENES RELATED TO DPPIV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Penn, Sharron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILE REFERENCE: Aeomica-X-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40 KEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Local Similarity
                                                                                                                              FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00665
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00668
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: GB 24263.6
FILING DATE: 2000-10-04
APPLICATION NUMBER: US 60/236,359
FILING DATE: 2000-09-27
                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: PCT/US01/00664
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 2000-05-26
APPLICATION NUMBER: US 09/632,366
                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: PCT/US01/00669
                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: PCT/US01/00667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: PCT/US01/00666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 2000-08-03
                              APPLICATION NUMBER: PCT/US01/00662
                                                                                                       APPLICATION NUMBER: PCT/US01/00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KEAILK 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Akinsanya, harakinsanya, harak
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/09976674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   David R.
l, David K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-01-30
                                                         2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                   2001-01-30
2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Karen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2.8%; Score 6;
100.0%; Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 10;
o. 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SINGLE EXON NUCLEIC LYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PROBES USEFUL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-09-864-761-36602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 41312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT: Rank, David R.
APPLICANT: Hanzel, David K.
APPLICANT: Chen, Mensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR
FITTLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
FILE REFERENCE: Acomica-X-1
CHERERENT ADDITION: GENE CAPPLESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OTHER INFORMATION: M
OTHER INFORMATION: E
                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR APPLICATION NUMBER: US 09/632,366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF SEQ ID NOS: 49117
                                        PRIOR
                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM: Homo sapiens FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            210 VLRGVN 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: PCT/US01/00670
OR FILING DATE: 2001-01-30
OR APPLICATION NUMBER: US 60/234,687
OR FILING DATE: 2000-09-21
OR FILING DATE: 2000-06-30
OR FILING DATE: 2000-06-30
OR FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8 VLRGVN 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US 09/774,203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             No.
                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 09/632,366 FILING DATE: 2000-08-03
                                        FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00665
                                                                               FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00669
                                                                                                                                                                                                                              APPLICATION NUMBER: US 60/236,359 FILING DATE: 2000-09-27
                                                                                                                                                                                                                                                                      FILING DATE: 2000-10-04
                                                                                                                         APPLICATION NUMBER: PCT/US01/00664
                                                                                                                                             FILING DATE: 2001-01-30
                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                      APPLICATION NUMBER: PCT/US01/00666
                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: GB 24263.6
APPLICATION NUMBER: PCT/US01/00668
                     FILING DATE:
                                                                                                                                                              APPLICATION NUMBER: PCT/US01/00667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36602,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US20020048763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09864761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAMP TO AL136306.2
I EXPRESSED IN HEART,
I EXPRESSED IN BACE M
EXPRESSED IN PLACEN
EXPRESSED IN ADULT
EXPRESSED IN BRAIN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2001-01-29
                                                                                                                                                                                   2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EXPRESSED IN PLACENTA, SIGNAL = 1.1

EXPRESSED IN ADULT LIVER, SIGNAL = 1.1

EXPRESSED IN BRAIN, SIGNAL = 1.8

EXPRESSED IN LUNG, SIGNAL = 1.5

EXPRESSED IN LUNG, SIGNAL = 1.5

EXPRESSED IN FETAL LIVER, SIGNAL = 3.2

EST_HUMAN HIT: AA315245.1, EVALUE 7.00e-09
                       2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.8%;
100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    °.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IN HEART, SIGNAL IN BONE MARROW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 6;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SIGNAL = 1.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
```

```
PRIOR PILING DATE: 2001-01-30
PRIOR PILING DATE: 2000-09-21
PRIOR PILING DATE: 2000-09-21
PRIOR PILING DATE: 2000-06-30
PRIOR PILING DATE: 2000-06-30
PRIOR PILING DATE: 2001-01-29
PRIOR 
                                                    FILE REFERENCE: Acomica X-1

CURRENT PILING DATE: 2001-05-23

CURRENT FILING DATE: 2000-05-26

PRIOR APPLICATION NUMBER: US 60/180,312

PRIOR FILING DATE: 2000-02-04

PRIOR FILING DATE: 2000-05-26

PRIOR PILING DATE: 2000-05-26

PRIOR APPLICATION NUMBER: US 09/632,366

PRIOR PILING DATE: 2000-08-03

PRIOR PILING DATE: 2000-08-03

PRIOR PILING DATE: 2000-10-04

PRIOR APPLICATION NUMBER: US 60/236,359

PRIOR PILING DATE: 2000-09-27

PRIOR APPLICATION NUMBER: DS 0/236,359

PRIOR PILING DATE: 2000-09-27

PRIOR PILING DATE: 2000-09-27

PRIOR APPLICATION NUMBER: PC/USO1/00666

PRIOR FILING DATE: 2001-01-30

PRIOR APPLICATION NUMBER: PC/USO1/00667

PRIOR APPLICATION NUMBER: PC/USO1/00667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-864-761-36602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 33862, Application US/09864761 Patent No. US20020048763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -09-864-761-33862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Hanzel, David K.
APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Penn, Sharron G.
APPLICANT: Rank, David R.
APPLICANT: Hanzel, David K
APPLICANT: Chen, Wensheng
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OTHER INFORMATION: OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  142 QTNPNV 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24 QTNPNV 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 2001-01
PILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00664
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                R INFORMATION:
R INFORMATION:
R INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , David R.
el, David K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-01-30
NUMBER: PCT/US01/00662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EXPRESSED
EXPRESSED
SWISSPROT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MAP TO ALO
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AL022725.8
SED IN BT474,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ED IN BONE MARROW, SIGNAL = 0.98
ED IN HBL100, SIGNAL = 0.73
ED IN ADULT LIVER, SIGNAL = 0.79
ED IN BRAIN, SIGNAL = 1.1
ED IN HELA, SIGNAL = 0.96
ED IN HEART, SIGNAL = 0.99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HIT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IN FETAL LIVER, SIGNAL = 0.96
IN LUNG, SIGNAL = 0.85
IN PLACENTA, SIGNAL = 1.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 6; I
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P46448, EVALUE 2.10e+00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 10;
o. 59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       = 0.67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
```

```
OTHER INFORMATION: MAP TO ACOO7670.1

OTHER INFORMATION: EXPRESSED IN HELA, SIGNAL = 1.9

OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 0.79

OTHER INFORMATION: EXPRESSED IN HEART, SIGNAL = 1.7

OTHER INFORMATION: EXPRESSED IN BONE MARROW, SIGNAL = 3.1

OTHER INFORMATION: EXPRESSED IN FETAL LIVER, SIGNAL = 2.3

OTHER INFORMATION: EXPRESSED IN ADULT LIVER, SIGNAL = 0.94

OTHER INFORMATION: EXPRESSED IN BRAIN, SIGNAL = 0.94

OTHER INFORMATION: EXPRESSED IN PLACENTA, SIGNAL = 0.94

OTHER INFORMATION: EXPRESSED IN PLACENTA, SIGNAL = 0.8

OTHER INFORMATION: EXPRESSED IN PLACENTA, SIGNAL = 0.8

OTHER INFORMATION: EXPRESSED IN HELIOO, SIGNAL = 8.1

OTHER INFORMATION: EXPRESSED IN BRAIN, SIGNAL = 8.1

OTHER INFORMATION: EXPRESSED IN HELIOO, SIGNAL = 8.1

OTHER INFORMATION: SWISSPROT HIT: BRIJ36, EVALUE 8.00e-10

OTHER INFORMATION: EST_HUMAN HIT: BE397236.1, EVALUE 9.00e-18

US-09-864-761-33862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 20
US-09-981-876-242
PRIOR APPLICATION NUMBER: 60/040,162
PRIOR FILING DATE: 1997-03-07
PRIOR APPLICATION NUMBER: 60/040,333
PRIOR FILING DATE: 1997-03-07
PRIOR APPLICATION NUMBER: 60/038,621
PRIOR FILING DATE: 1997-03-07
PRIOR APPLICATION NUMBER: 60/040,161
PRIOR FILING DATE: 1997-03-07
PRIOR FILING DATE: 1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                Patent No. US2002016
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQ ID NO 33862
LENGTH: 43
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 242,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:

OTHER INFORMATION: MAP TO AN OTHER INFORMATION: EXPRESSE OTHER INFORMATION: EXPRESSE OTHER INFORMATION: EXPRESSE OTHER INFORMATION: EXPRESSES OTHER INFORMATION: EXPRESSES
                                                                                                                                                                                                                                                               APPLICANT: ROSen et al.
TITLE OF INVENTION: 70 Human Secreted Proteins
FILE REFERENCE: PZ001P1
CURRENT APPLICATION NUMBER: US/09/981,876
CURRENT FILING DATE: 2001-10-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 09/148,545
PRIOR FILING DATE: 1998-09-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Annomax Sequence Listing Engine vers.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         205 TEEVVV 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 60/234,687
FILING DATE: 2000-09-21
APPLICATION NUMBER: US 09/608,408
FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 09/774,203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: PCT/US01/00670 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: PCT/US01/00661 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: PCT/US01/00662 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: PCT/US01/00668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: PCT/US01/00669 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ING DATE: 2001-01-29
SEQ ID NOS: 49117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                              US20020164669A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/09981876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.8%; Score 6; 100.0%; Pred. No. :ive 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 10;
D. 73;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 43;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
```

NUMBER: 60/040,626

PRIOR	PRIOR FILING DATE: 1997-04-11 PRIOR APPLICATION NUMBER: 60/043,671 PRIOR FILING DATE: 1997-04-11 PRIOR FILING DATE: 1997-04-11 PRIOR APPLICATION NUMBER: 60/043,674 PRIOR FILING DATE: 1997-04-11 PRIOR FILING DATE: 1997-04-11 PRIOR PILING DATE: 1997-04-11 PRIOR PILING DATE: 1997-04-11 PRIOR PILING DATE: 1997-04-11 PRIOR PILING DATE: 1997-04-11 PRIOR APPLICATION NUMBER: 60/043,313 PRIOR PILING DATE: 1997-04-11	REIOR APPLICATION UNUMBER: 60/040,336 PRIOR RILING DATE: 1997-03-07 PRIOR APPLICATION NUMBER: 60/040,163 PRIOR FILING DATE: 1997-03-07 PRIOR RILING DATE: 1997-05-23 PRIOR REPLICATION NUMBER: 60/047,615 PRIOR REPLICATION NUMBER: 60/047,600 PRIOR FILING DATE: 1997-05-23 PRIOR REPLICATION NUMBER: 60/047,597 PRIOR REPLICATION NUMBER: 60/047,597 PRIOR REPLICATION NUMBER: 60/047,597 PRIOR PELICATION NUMBER: 60/047,597 PRIOR PELICATION NUMBER: 60/047,633 PRIOR PELICATION NUMBER: 60/047,633 PRIOR PELICATION NUMBER: 60/047,617 PRIOR PELICATION NUMBER: 60/047,617 PRIOR PELICATION NUMBER: 60/047,617 PRIOR PELICATION NUMBER: 60/047,617 PRIOR PELICATION NUMBER: 60/047,593 PRIOR APPLICATION NUMBER: 60/047,593 PRIOR APPLICATION NUMBER: 60/047,593 PRIOR PELICATION NUMBER: 60/047,593 PRIOR PELICATION NUMBER: 60/047,593 PRIOR PELICATION NUMBER: 60/047,593 PRIOR APPLICATION NUMBER: 60/047,593 PRIOR APPLICATION NUMBER: 60/047,593 PRIOR REPLICATION NUMBER: 60/047,593 PRIOR REPLICATION NUMBER: 60/047,593 PRIOR REPLICATION NUMBER: 60/047,593 PRIOR REPLICATION NUMBER: 60/047,593 PRIOR PELICATION NUMBER: 60/047,632 PRIOR PELICATION NUMBER: 60/047,633 PRIOR APPLICATION NUMBER: 60/047,633 PRIOR PELICATION NUMBER: 60/047,633 PRIOR APPLICATION NUMBER: 60/047
PRIOR		

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-09-148-545-242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF S
SOFTWARE:
SEQ ID NO 2
LENGTH: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFO
                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 242, Appublication No.
                                                                                                                                                           EARLIER
EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                              CURRENT
CURRENT
EARLIER
EARLIER
EARLIER
EARLIER
                                                        EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: PZ001P1
                                                                                                           EARLIER
                                                                                                                              EARLI
                                                                                                                                              EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R APPLICATION NUMBER: (
R FILING DATE: 1997-08-
R APPLICATION NUMBER: (
R FILING DATE: 1997-08-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/056,884 FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/056,632
FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,664
FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,876
                                                                                                                                                                                                                                                                                                                                                                       CANT: Rosen et
OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1997-06-06
APPLICATION NUMBER: 60/057,650
FILING DATE: 1997-09-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1997-0
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/
FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION
 SR APPLICATION NUMBER: 60/040,626
ER FILING DATE: 1997-03-07
ER APPLICATION NUMBER: 60/040,334
ER FILING DATE: 1997-03-07
ER APPLICATION NUMBER: 60/040,336
ER FILING DATE: 1997-03-07
ER APPLICATION NUMBER: 60/040,163
ER FILING DATE: 1997-03-07
ER APPLICATION DATE: 1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/048,964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGSVLV 177
                                                                                                                                                                                                            APPLICATION NUMBER: PCT/US98/04482
FILING DATE: 1998-03-06
APPLICATION NUMBER: 60/040,162
FILING DATE: 1997-03-07
APPLICATION NUMBER: 60/040,333
FILING DATE: 1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION:
                                                                                                                                          FILING DATE: 1997-03-07
APPLICATION NUMBER: 60/040,161
FILING DATE: 1997-03-07
                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US/09/148,545 FILING DATE: 1998-09-04
                                                                                                                                                                                            FILING DATE: 1997-03-07
APPLICATION NUMBER: 60/038,621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ING DATE: 1997-08-3
SEQ ID NOS: 280
PatentIn Ver. 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                              Application US/09148545
o. US20030027132A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER: 60: 1997-04-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER: 60/056,887
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER: 60/056,881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER: 60/043,670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1997-04-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1997-05-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1997-08-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1997-08-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1997-04-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.8%; Score 6; DB
100.0%; Pred. No. 96
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                           Human Secreted Proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/056,908
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/056,862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/056,875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/056,909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/047,501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/043,576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
     EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
                                                                                                                                          EARLIER
EARLIER
EARLIER
                                                                                                                                                                                              EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                      EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                         EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                            EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                              EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EARLIER
EARLIER
                                                                                                                                                                                                                                                   EARLIER
                                                                                                                                                                                                                                                                       EARLIER
                                                                                                                                                                                                                                                                                     EARLIER
                                                                                                                                                                                                                                                                                                      EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER
ER APPLICATION NUMBER: 60/043,568
ER FILING DATE: 1997-04-11
ER APPLICATION NUMBER: 60/043,314
ER FILING DATE: 1997-04-11
ER FILING DATE: 1997-04-11
ER APPLICATION NUMBER: 60/043,569
ER FILING DATE: 1997-04-11
ER PILING DATE: 1997-04-11
ER PILING DATE: 1997-04-11
ER PILING DATE: 1997-04-11
ER APPLICATION NUMBER: 60/043,671
ER APPLICATION NUMBER: 60/043,669
ER FILING DATE: 1997-04-11
ER APPLICATION NUMBER: 60/043,669
ER APPLICATION NUMBER: 60/043,312
ER APPLICATION NUMBER: 60/043,313
ER APPLICATION NUMBER: 60/043,313
ER APPLICATION NUMBER: 60/043,313
ER APPLICATION NUMBER: 60/043,672
ER FILING DATE: 1997-04-11
ER APPLICATION NUMBER: 60/043,672
ER FILING DATE: 1997-04-11
ER APPLICATION NUMBER: 60/043,672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R FILING DATE: 1997-05-23
R APPLICATION NUMBER: 60/047,492
RR FILING DATE: 1997-05-23
RR APPLICATION NUMBER: 60/047,598
RR APPLICATION NUMBER: 60/047,613
RR APPLICATION NUMBER: 60/047,613
RR FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,632
FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/047,584
FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,500
FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/047,503
FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,592
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1997-0
APPLICATION NUMBER:
FILING DATE: 1997-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/047,633 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/047,583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/047,615
FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,600
FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/047,601
FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/043,580
FILING DATE: 1997-04-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,596
FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,581
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/047,582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1997-05-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/047,617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/047,597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/047,618
```

```
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLI
                                                                                                                                                                                                                                                       EARLI
                                                                                                                                                                                                                                                                                               EARL
                                                                                                                                                                                                                                                                                                                                                                                                                                                   3ARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               \XiARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EARLI
R APPLICATION NUMBER: 60/04
R FILING DATE: 1997-04-11
R APPLICATION NUMBER: 60/04
R FILING DATE: 1997-04-11
R APPLICATION NUMBER: 60/04
R FILING DATE: 1997-05-23
R APPLICATION NUMBER: 60/04
R FILING DATE: 1997-04-11
                                                                                                                          APPLICATION NUMBER: 60/047,593
FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 1997-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/
FTLING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1997-08 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/056,630 FILING DATE: 1997-08-22 APPLICATION NUMBER: 60/056,878
                                                                                                                                                                                   APPLICATION
                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/
FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                              FILING DATE: 1997-05
                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/056,910 FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/056,637
                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                           LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                      LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER: 60/056,878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER:
                                                                                                                                                                                  NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1997-08-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                      1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1997-08-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1997-08-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1997-08-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1997-08-22
                                                                                                                                                                     1997-05-
                                                                                                                                                                                                                           1997-05-
                                                                                                                                                                                                                                                    1997-05-23
                                                                                                                                                                                                                                                                               1997-05-
                                                                                                                                                                                                                                                                                                         1997-05-23
                                                                                                                                                                                                                                                                                                                                                               05-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1997-08-22
                                                                                                                                                                                                1997-05
                                                                                                                                                                                                                                                                                                                                                                                           1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/056,911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/056,879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/056,888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/056,903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/056,882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/056,872
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/056,662
                                                                                                                                                                                                                                       60/047,590
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/056,894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/056,889
                                                                                                                                                                                                                                                                                                                                                                                                      60/047,595
                                                                                                                                                                                                                                                                                                                                                                                                                                60/056,892
                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/056,845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/056,631
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/056,864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/056,880
               60/043,670
                                         60/047,501
                                                                   60/043,576
                                                                                                60/043,578
                                                                                                                                                                                  60/047,589
                                                                                                                                                                                                             60/047,594
                                                                                                                                                                                                                                                                 60/047,586
                                                                                                                                                                                                                                                                                            60/047,585
                                                                                                                                                                                                                                                                                                                       60/047,588
                                                                                                                                                                                                                                                                                                                                                 60/047,599
                                                                                                                                                                                                                                                                                                                                                                           60/057,761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/056,874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/056,636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/056,893
```

```
JATE: 195

SEQ ID NOS: 28

SOFTWARE: PatentIn Ver. 2

SEQ ID NO 242

LENGTH: 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 22
US-09-981-876-186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 10 Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: ROSEN et a
TITLE OF INVENTION: 7
FILE REFERENCE: PZOO1
CURRENT APPLICATION N
CURRENT FILING DATE:
PRIOR APPLICATION NUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER
EARLIER
                                                                                                             PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLI
                                             PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OR APPLICATION NUMBER: 60/040,162
OR FILING DATE: 1997-03-07
OR APPLICATION NUMBER: 60/040,333
OR FILING DATE: 1997-03-07
OR APPLICATION NUMBER: 60/038,621
OR FILING DATE: 1997-03-07
OR APPLICATION NUMBER: 60/040,161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     50
DR FILLING DATE: 1997-03-18 APPLICATION NUMBER: 60 PR FILLING DATE: 1997-03-18 APPLICATION NUMBER: 60 PR FILLING DATE: 1997-03-18 APPLICATION NUMBER: 60 PR FILLING DATE: 1997-05-18 APPLICATION NUMBER: 1997-05-18 APPLICA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 09/148,545 FILING DATE: 1998-09-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ER FILING DATE: 1997-08-22
ER APPLICATION NUMBER: 60/056,881
ER FILING DATE: 1997-08-22
ER APPLICATION NUMBER: 60/056,909
ER FILING DATE: 1997-08-22
ER APPLICATION NUMBER: 60/056,875
ER FILING DATE: 1997-08-22
ER APPLICATION NUMBER: 60/056,862
ER APPLICATION NUMBER: 60/056,862
ER APPLICATION NUMBER: 60/056,887
ER APPLICATION NUMBER: 60/056,908
ER FILING DATE: 1997-08-22
ER FILING DATE: 1997-08-22
ER FILING DATE: 1997-08-22
ER APPLICATION NUMBER: 60/056,908
ER FILING DATE: 1997-08-22
ER APPLICATION NUMBER: 60/048,964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGSVLV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SGSVLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1997-06-06
APPLICATION NUMBER: 60/057,650
FILING DATE: 1997-09-05
APPLICATION NUMBER: 60/056,884
FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/056,632
FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,664
FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FERENCE: PZ001P1

APPLICATION NUMBER: US/09/981,876
FILING DATE: 2001-10-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           186, Application US/09981876
o. US20020164669A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.8%; Scillarity 100.0%; P: Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NOS: 280
                                                                                                             NUMBER: 60/
: 1997-05-23
                                                                               NUMBER: 60/047,597
                                                                                                                                                                                        1997-05-23
                                                                                                                                                                                                                                                                                                                                           1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                              1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1997-03-07
                                                                                                                                                                                                                                                               1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           al.
70 Human Secreted Proteins
                                                997-05-
                                                                                                                                                                                                                                                                                              60/040,163
                                                                                                                                                                                                                                                                                                                                                                                                                                             60/040,334
                                                                                                                                                      60/047,600
                                                                                                                                                                                                                          60/047,615
                                                                                                                                                                                                                                                                                                                                                                         60/040,336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/040,626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 6; Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
```

PRIOR PRIOR

-22 60/056, -22	APPLICATION NUMBER: 60/056,889 PILING DATE: 1997-08-22 APPLICATION NUMBER: 60/056.893	056,87	APPLICATION NUMBER: 60/048,974 FILING DATE: 1997-06-06 ADDITCATION NUMBER: 60/056 886	R PILING DATE: 1997-04-11 R APPLICATION UMBER: 60/043,315 R PILING DATE: 1997-04-11	IOR APPLICATION NUMBER: 60/043,672	APPLICATION NUMBER: 60/	PILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043,3	FILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043,6	FILING DATE: 1997-04-11 ADDITION NUMBER: 60/043-67	FILING DATE: 1997-04-11	FILING DATE: 1997-04-11	FILING DATE: 1997-04-11 ADDITCATION WINNER: 60/043 56	FILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043.31	FILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043,	FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/043,5	047.60	FILING DATE: 1997-05-23	FILING DATE: 1997-05-23 ADDITION NIMBER: 60/047 61	APPLICATION NUMBER: 60/0. APPLICATION NUMBER: 60/0.	APPLICATION NUMBER: 60/047,61 FILING DATE: 1997-05-23 ADDITION NUMBER: 60/047,61	APPLICATION NUMBER: 60/047,5 FILING DATE: 1997-05-23	APPLICATION NUMBER: 60/047,4 FILING DATE: 1997-05-23	APPLICATION NUMBER: 60/047,58 FILING DATE: 1997-05-23	APPLICATION NUMBER: 60/047,5 FILING DATE: 1997-05-23	APPLICATION NUMBER: 60 FILING DATE: 1997-05-2	APPLICATION FILING DATE	NUMBER: 60/047,5 : 1997-05-23	FILING DATE: 1997-05-23	FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/047.5	APPLICATION NUME	APPLICATION NUMBER: 60	OR FILING DATE: 1007-05-23
; PRIOR ; PRIOR ; PRIOR	PRION STATES	; PRIOR ; PRIOR	; PRIO	; PRIOR ;	; PRIOR	; PRIOF	; PRION	; PRIOR	; PRIOR	PRIOR	; PRIOR	; PRIO	; PRIO	; PRIOF	; PRIOR ; PRIOR	; PRIOF	; PRIOR	PRIOR	; PRIOR	; PRIOR	; PRIOR	; PRIOR	; PRIOR	; PRIOR ; PRIOR	; PRIOR ; PRIOR	; PRIOR	; PRIOR	PRIOR	PRIOR	; PRIOR	PRIOR	; FXIOR

PRIOR

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 23
US-09-148-545-186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: Pate
SOFTWARE: Pate
SEQ ID NO 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 18
      CURRENT
EARLIER
EARLIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: 70 Human Secreted Proteins FILE REFERENCE: P2001D1 CURRENT APPLICATION NUMBER: US/09/148,545 CURRENT FILING DATE: 1998-09-04 EARLIER APPLICATION NUMBER: PCT/US98/04482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DR APPLICATION NUMBER: 60/056,908
DR FILING DATE: 1997-08-22
DR APPLICATION NUMBER: 60/048,964
DR FILING DATE: 1997-06-06
DR APPLICATION NUMBER: 60/057,650
DR APPLICATION NUMBER: 60/056,884
DR APPLICATION NUMBER: 60/056,884
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PR FILING DATE: 1997-08-22

PR APPLICATION NUMBER: 60/056,909

PR FILING DATE: 1997-08-22

PR APPLICATION NUMBER: 60/056,875

PR FILING DATE: 1997-08-22

PR APPLICATION NUMBER: 60/056,862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
APPLICATION NO
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING
ER FILING DATE: 1997-03-07

ER APPLICATION NUMBER: 60/047,615

ER APPLICATION NUMBER: 60/047,600

ER APPLICATION NUMBER: 60/047,500

ER APPLICATION NUMBER: 60/047,597

ER APPLICATION NUMBER: 60/047,597

ER PILING DATE: 1997-05-23

ER APPLICATION NUMBER: 60/047,633

ER APPLICATION NUMBER: 60/047,633

ER FILING DATE: 1997-05-23

ER APPLICATION NUMBER: 60/047,583

ER APPLICATION NUMBER: 60/047,587

ER APPLICATION NUMBER: 60/047,617

ER PILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SGSVLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SGSVLV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                186, Application No. US20030027132A1
                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/040,336
FILING DATE: 1997-03-07
APPLICATION NUMBER: 60/040,163
                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/
FILING DATE: 1997-03-07
APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-03-06
APPLICATION NUMBER: 60/040,162
                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/040,161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1997-03
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1997-03-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/038,621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PatentIn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rosen et al.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Application US/09148545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E: 1997-08-22
NOS: 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER: 60/056,887
: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1997-03-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.8%; 5c.
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/040,626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/040,333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 6; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB
98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER
EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER
EARLIER
                                            EARLIER
EARLIER
EARLIER
EARLIER
                                                                                                                              EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                  EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
                                                                                                                                                                                              EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER
                                                                                                                                                                                                                                        EARLIER
                                                                                                                                                                                                                                                            EARLIER
                                                                                                                                                                                                                                                                                                                              EARLIER
                                                                                                                                                                                                                                                                                                                                                EARLIER
                                                                                                                                                                                                                                                                                                                                                                      EARLIER
                                                                                                                                                                                                                                                                                                                                                                                          EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                EARLIER
      FILING DATE: APPLICATION 1
```

R FILING DATE: 1997-05-23

R APPLICATION NUMBER: 60/047,632

R FILING DATE: 1997-05-23

R APPLICATION NUMBER: 60/047,601

R FILING DATE: 1997-05-23

ER APPLICATION NUMBER: 60/043,580

ER FILING DATE: 1997-04-11 R FILING DATE: 1997-08-22
R APPLICATION NUMBER: 60/056,878
R FILING DATE: 1997-08-22
R APPLICATION NUMBER: 60/056,662
R APPLICATION NUMBER: 60/056,872
R APPLICATION NUMBER: 60/056,872
R APPLICATION NUMBER: 60/056,872 FILING DATE: 1997-04-11
APPLICATION NUMBER: 60/043,569
FILING DATE: 1997-04-11
APPLICATION NUMBER: 60/043,311
FILING DATE: 1997-04-11 RILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,582
APPLICATION NUMBER: 60/047,596 FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,598
FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/047,581 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/047,584 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/047,618 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/043,312 FILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043,313 APPLICATION NUMBER: 60/043,671 FILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043,674 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/047,612 APPLICATION NUMBER: 60/047,613 FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,492 APPLICATION NUMBER: 60/047,500 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/047,592 FILING DATE: 1997-04-11
APPLICATION NUMBER: 60/043,315
FILING DATE: 1997-04-11
APPLICATION NUMBER: 60/048,974 APPLICATION NUMBER: 60, FILING DATE: 1997-04-1 FILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043,314 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/056,893 FILING DATE: 1997-08-22 APPLICATION NUMBER: 60/056,889 FILING DATE: 1997-08-22 FILING DATE: 1997-08-22 APPLICATION NUMBER: 60/ FILING DATE: 1997-08-22 APPLICATION NUMBER: 60/056,886 FILING DATE: 1997-04-11
APPLICATION NUMBER: 60/043,672 FILING DATE: 1997-04-APPLICATION NUMBER: 60/043,568 APPLICATION NUMBER: 60/047,587 APPLICATION NUMBER: 60/056,630 1997-08-22 1997-05-23 60/043,669 60/047,503 60/056,877

1997-08-22

```
EARLIER
EARLIER
EARLIER
                                                                                   EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
EARLIER
                                                                                                                                                                                        EARLIER
EARLIER
                                                                                                                                                                                                                                                                                           EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                      EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER
EARLIER
                                                                                                                                                                                                                     EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EARLIER
EARLIER
EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER
EARLIER
             EARLIER
EARLIER
                                                                                                                                                                                                                                                  EARLIER
                                                                                                                                                                                                                                                               EARLIER
                                                                                                                                                                                                                                                                                EARLIER
                                                                                                                                                                                                                                                                                                                                                                                               EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EARLIER
EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SARLIER
SARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EARLIER
                                                                                                                                                                                                                                                                                                                                                                                  EARLIER
                                                                                                                                                                                                                                                                                                                                                                                                            SARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                        BARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ARLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PARLIER
                                                                                                                                                                                                                                                                                                                                                                  ARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                        ARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ARLIER
ARLIER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ARLIER
                                                                                                                                                      FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,664
                                                                                                                                                                                                                  APPLICATION NUMBER: 60/047,501 FILING DATE: 1997-05-23 APPLICATION NUMBER: 60/043,670
                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/043,578 FILING DATE: 1997-04-11 APPLICATION NUMBER: 60/043,576
                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,593
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/047,599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1997-05-23
APPLICATION NUMBER: 60/057,761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/047,595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,636
                                                                    FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,881
FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,909
                                                                                                                              FILING DATE: 1997-08-22
APPLICATION NUMBER: 60/056,876
                                                                                                                                                                                     FILING DATE: 1997-04-11
APPLICATION NUMBER: 60/056,632
                                                                                                                                                                                                                                                                                                                                  PILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,614
                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/047,590 FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/047,585 FILING DATE: 1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PILING DATE: 1997-05-23
APPLICATION NUMBER: 60/047,588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/056,631 FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/056,864
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/056,910 PILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PILING DATE: 1997-01
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
APPLICATION I
                         APPLICATION NUMBER: 60/056,875 FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/047,589
                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/047,594
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/047,586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/056,892
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/056,845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/056,911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/056,894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/056,880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/056,879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/056,888
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
FILING
                                                      FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER:
                                                                                                                                                                                                                                                            1997-04-11
                                                                                                                                                                                                                                                                                                                                                                                                          1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1997-08-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1997-08-22
                                                                                                                                                                                                                                                                                                                        1997-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     05-Sep-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/056,874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/056,637
```

```
EARLIER APPLICATION NUMBER: 60/056,887
EARLIER FILING DATE: 1997-08-22
EARLIER APPLICATION NUMBER: 60/056,908
EARLIER FILING DATE: 1997-08-22
EARLIER FILING DATE: 1997-06-06
EARLIER FILING DATE: 1997-06-06
EARLIER APPLICATION NUMBER: 60/057,650
EARLIER FILING DATE: 1997-09-05
EARLIER FILING DATE: 1997-09-05
EARLIER FILING DATE: 1997-09-05
EARLIER APPLICATION NUMBER: 60/056,884
EARLIER FILING DATE: 1997-08-22
NUMBER OF SEQ ID NOS: 280
SOFTWARE: PATENTIN VET: 2.0
SOFTWARE: PATENTIN VET: 2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 24
US-09-864-761-45366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 45366, Application US/09864761 Patent No. US20020048763A1
                                                   PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Hanzel, David APPLICANT: Chen, Wensheng TITLE OF INVENTION: HUMAN TITLE OF INVENTION: GENE FILE REFERENCE: Aeomica-X-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CURRENT APPLICATION NUMBER: CURRENT FILING DATE: 2001-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Penn, Sharron G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity hes 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      50
                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: PCT/US01/00664
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00669
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: US 09/632,366
FILING DATE: 2000-08-03
APPLICATION NUMBER: GB 24263.6
FILING DATE: 2000-10-04
APPLICATION NUMBER: US 60/236,359
                                                                FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00661
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00670
FILING DATE: 2001-01-30
APPLICATION NUMBER: US 60/234,687
                                                                                                                                                                                FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00663
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00662
                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 60/180,312 FILING DATE: 2000-02-04 APPLICATION NUMBER: US 60/207,456 FILING DATE: 2000-05-26
                                                                                                                                                                                                                                                           FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00668
                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 2000-09-27
APPLICATION NUMBER: PCT/US01/00666
                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SGSVLV 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SGSVLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Rank, David R.
Hanzel, David K.
Chen, Wensheng
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
               : 2000-09-21
NUMBER: US 09/608,408
: 2000-06-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2001-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL FOR EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/09/864,761
09/774,203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 6; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 98;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 59;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 25
US-09-864-761-46027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-864-761-45366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR FILING DATE: 2001-01-29
NUMBER OF SEQ ID NOS: 49117
SOFTWARE: Annomax Sequence Listing Engine vers. 1.1
SEQ ID NO 45366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 46027, Application US/09864761 Patent No. US20020048763A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OTHER INFORMATION: NOTHER INFORMATION: E OTHER INFORMATION: E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR FILING DATE: 2000-05-26
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR FILING DATE: 2000-08-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Hanzel, David K.
APPLICANT: Chen, Wensheng
TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC
TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                      PRIOR PRIOR
                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILE REFERENCE: Aeomica-X-1
                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR FILING DATE: 2000-09-27
PRIOR APPLICATION NUMBER: PCT/US01/00666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: GB 24263.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            42 AILKIN 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               40 AILKIN 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity es 6; Conserv
                                                                                                                                                                                                                                                                                                                                    FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00667
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00664
FILING DATE: 2001-01-30
                                                      APPLICATION NUMBER: PCT/US01/00661
FILING DATE: 2001-01-30
APPLICATION NUMBER: PCT/US01/00670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 2000-10-04
APPLICATION NUMBER: US 60/236,359
                                                                                                                       FILING DATE: 2001-01-30
                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                            FILING DATE: 2001-01-30
                                                                                                                                                                                                                              APPLICATION NUMBER: PCT/US01/00668
                                                                                                                                                                                                                                                   APPLICATION NUMBER: PCT/US01/00665
FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: PCT/US01/00669
                   FILING DATE: APPLICATION
                                                                                                                                               APPLICATION NUMBER: PCT/US01/00662
                                                                                                                                                                 APPLICATION NUMBER: PCT/US01/00663 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Penn, Sharron G.
Rank, David R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    N: MAP TO AL121914.16

N: EXPRESSED IN BONE MARROW, SIGNAL = 0.86

N: EXPRESSED IN FETTAL LIVER, SIGNAL = 0.98

N: EXPRESSED IN PLACENTA, SIGNAL = 0.49

N: EXPRESSED IN ADULT LIVER, SIGNAL = 0.72

N: EXPRESSED IN ADULT LIVER, SIGNAL = 0.78

N: EXPRESSED IN BRAIN, SIGNAL = 0.88

N: EXPRESSED IN BRAIN, SIGNAL = 0.88

N: EXT HUMAN HIT: R28249.1, EVALUE 4.00e-28

N: SWISSPROT HIT: 021326, EVALUE 9.00e-01
3: 2001-01-30
N NUMBER: US 6
3: 2000-09-21
                                                                                                                                                                                                                                                                                               2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.8%; Score 6; DB 10; Lengum v=,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             = 0.86
.AL = 0.98
.L = 0.49
.NAL =
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACID PROBES USEFUL FOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-864-761-46027
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-738-626-6744
                                                                                                                                                                 US-09-738-626-6744
                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
SOFTWARE: Patentin ver. 3.0
SEQ ID NO 6744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: Annomax Sequence Listing Engine vers.
SEQ ID NO 46027
LENGTH: 70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 6744, Application US/09738626 Publication No. US20020197605A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                               Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: US 09/608,408
PRIOR FILING DATE: 2000-06-30
PRIOR APPLICATION NUMBER: US 09/774,203
PRIOR FILING DATE: 2001-01-29
NUMBER OF SEQ ID NOS: 49117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR FILING DATE: 2000-04-07
                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: NAKAGAWA, SATOSHI APPLICANT: MIZOGUCHI, HIROSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OTHER INFORMATION: MAP TO AL138828.4

OTHER INFORMATION: EXPRESSED IN BRAIN, SIGNAL = 1.5

OTHER INFORMATION: EXPRESSED IN BRIENT LIVER, SIGNAL = 1.9

OTHER INFORMATION: EXPRESSED IN FETAL LIVER, SIGNAL = 2

OTHER INFORMATION: EXPRESSED IN HELA, SIGNAL = 1.9

OTHER INFORMATION: EXPRESSED IN LUNG, SIGNAL = 1.9

OTHER INFORMATION: EXPRESSED IN LUNG, SIGNAL = 5.1

OTHER INFORMATION: EXPRESSED IN LUNG, SIGNAL = 5.1

OTHER INFORMATION: EXPRESSED IN LONG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: OZAKI, AKIO
TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM: Homo sapiens FEATURE:
                                                                                                                                                                                LENGTH: 87
TYPE: PRT
ORGANISM: Corynebacterium glutamicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  206 EEVVVL 211
                                      118 AVILLT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           15 EEVVVL 20
73
AVILLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YOKOI, HARUHIKO
TATEISHI, NAOKO
SENOH, AKIHIRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HAYASHI, MIKII
OCHIAI, KEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MIZOGUCHI, HIROSHI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ANDO, SEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IKEDA, MASATO
78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MIKIRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.8%; Score 6; DB:
100.0%; Pred. No. 1.:
tive 0; Mismatches
                                                                                                       100.0%;
                                                                                                       2.8%; Score 6; 1
|00.0%; Pred. No.
                                                                                 0,
                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 10; Le...
No. 1.1e+02;
                                                                                                                        DB 9;
                                                                                                       1.4e+02;
                                                                                                                        Length 87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 70;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                 Gaps
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Marches 6; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-984-271-179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-09-984-271-178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 179, Applic Publication No. US20 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQ ID NOS: 267
SOFTWARE: PatentIn Ver. 2
SEQ ID NO 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 178, Ap
                                                                                                                                                                                                      SOFTWARE: Pa
                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: PZ030P1
CURRENT APPLICATION NUMBER: US/09/984,271
CURRENT FILING DATE: 2001-10-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION NUMBER: PCT/US99/15849
PRIOR FILING DATE: 1999-07-14
PRIOR APPLICATION NUMBER: 60/092,921
PRIOR FILING DATE: 1998-07-15
PRIOR APPLICATION NUMBER: 60/092,922
PRIOR FILING DATE: 1998-07-15
                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: 09/482,273
PRIOR FILING DATE: 2000-01-13
PRIOR APPLICATION NUMBER: PCT/US99/15849
PRIOR FILING DATE: 1999-07-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Rosen et al.
TITLE OF INVENTION: 71 Human Secreted Proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/984,271 CURRENT FILING DATE: 2001-10-29
                                                                                                                                                                                                                                           NUMBER OF SEQ ID NOS: 267
                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: 60/092,956 PRIOR FILING DATE: 1998-07-15
                                                                                                                                                                                                                                                                                                                PRIOR APPLICATION NUMBER: 60/092,922
                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION NUMBER: 60/092,921 PRIOR FILING DATE: 1998-07-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 09/482,273 PRIOR FILING DATE: 2000-01-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILE REFERENCE: PZ030P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Rosen et al.
TITLE OF INVENTION: 71 Human Secreted Proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TYPE: PRT
ORGANISM: Homo sapiens
NAME/KEY: SITE
LOCATION: (66)
OTHER INFORMATION: Xaa equals any of the naturally occurring L-amino acids
                                                            LOCATION: (55)
OTHER INFORMATION: Xaa
                                                                                                                                           TYPE: PRT
ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY: SITE
LOCATION: (88)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
                                                                                                          NAME/KEY: SITE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OTHER INFORMATION: Xaa equals stop translation
                                                                                                                                 FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       117 AAVILL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18 AAVILL
                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-07-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/092,956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION
                                                                                                                                                                                                                      PatentIn Ver.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/09984271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/09984271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US20030040088A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US20030040088A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-07-15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2001-10-29
                                                                                                                                                                                                                        2.0
                                                                    equals
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 6; DB 9; Le
Pred. No. 1.4e+02;
                                                                    any
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                              of the naturally occurring L-amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; NAME/KEY: SITE
; LICCATION: (88)
; OTHER INFORMATION: Xaa equals stop translation
US-09-984-271-179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT FILING DATE: 2001-05-23
PRIOR APPLICATION NUMBER: US 60/180,312
PRIOR FILING DATE: 2000-02-04
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR APPLICATION NUMBER: US 60/207,456
PRIOR APPLICATION NUMBER: US 09/632,366
PRIOR FILING DATE: 2000-08-03
PRIOR FILING DATE: 2000-08-03
PRIOR APPLICATION NUMBER: GB 24263.6
PRIOR FILING DATE: 2000-10-04
                                                                                                                         SOFTWARE: Annomax Sequence Listing Engine vers. SEQ ID NO 37228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 37228, Application US/09864761 Patent No. US20020048763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/09/864,761
CURRENT FILING DATE: 2001-05-23
                                                                                                                                                              NUMBER OF SEQ ID NOS: 49117
                                                                                                                                                                             PRIOR APPLICATION NUMBER: US 09/774,203 PRIOR FILING DATE: 2001-01-29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: HUMAN GENOME-DERIVED SINGLE EXON NUCLEIC ACID PROBES USEFUL TITLE OF INVENTION: GENE EXPRESSION ANALYSIS BY MICROARRAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT: Penn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILE REFERENCE: Aeomica-X-1
OTHER INFORMATION: MAP TO AL021877.1
OTHER INFORMATION: EXPRESSED IN PLACENTA, SIGNAL = 1.7
                                       ORGANISM: Homo sapiens FEATURE:
                                                                                 TYPE: PRT
                                                                                                    LENGTH: 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  117 AAVILL 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18 AAVILL 23
                                                                                                                                                                                                                     FILING DATE: 2000-09-21
APPLICATION NUMBER: US 09/608,408
FILING DATE: 2000-06-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: PCT/US01/00669 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: PCT/US01/00667 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: PCT/US01/00666 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US 60/236,359 FILING DATE: 2000-09-27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: PCT/US01/00668 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: PCT/US01/00665 FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: PCT/US01/00664
                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: US 60/234,687
                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: PCT/US01/00670
                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: PCT/US01/00661
                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: PCT/US01/00663
                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: PCT/US01/00662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                             LING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rau...
Hanzel, Davi
Than, Wensheng
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            , Sharron G.
                                                                                                                                                                                                                                                                                                        2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                           2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    David R.
, David K.
                                                                                                                                                                                                                                                                                                                                            2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                     2001-01-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 6; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8 9; -
1.4e+02;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 88;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

FOR

```
; OTHER INFORMATION: E OTHER INFORMATION: E OTHER INFORMATION: S OTHER INFORMATION: E OTHER INFORMATION: E OS-09-864-761-37228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 30
US-10-012-896-933
밁
                                           S
                                                                                                                                                                                                US-10-012-896-933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                  APPLICANT: Foy, Teresa
APPLICANT: Fanger, Gary R.
APPLICANT: Wantanabe, Yoshihiro
APPLICANT: Wantanabe, Yoshihiro
APPLICANT: Meagher, Madeleine Joy
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY AND
TITLE OF INVENTION: DIAGNOSIS OF PROSTATE CANCER
FILE REFERENCE: 210121.427C27
CURRENT APPLICATION NUMBER: US/10/012,896
CURRENT APPLICATION NUMBER: US/10/12,896
CURRENT FILING DATE: 2001-12-10
NUMBER OF SEQ ID NOS: 1011
SOFTWARE: FASTSEQ for Windows Version 3.0
SEQ ID NO 933
IFENCTH. 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 933, Appropriate Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL
                                                                                                                        Best
                                                                                                                                               Query Match
                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Xu, Jiangchun
APPLICANT: Dillon, Davin C.
APPLICANT: Mitcham, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICANT:
                                                                                                                                                                                                                    ORGANISM: Homo sapiens
                                                                                                                                                                                                                                                 TYPE: PRT
                                                                                                                                                                                                                                                                     LENGTH: 100
                                              169 ALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  12 VTASCT 17
                                                                                                                      Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3 VTASCT 8
N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION: INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INFORMATION:
ALNSGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 6; Conserv
                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Day, crar
Vedvick,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Jiang, Yuqiu
Kalos, Michael D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Skeiky, Yasir A.W.
Hepler, William T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Harlocker,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Henderson, Robert A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Retter, Marc W. Stolk, John A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Application US/10012896
5. US20020183251A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Carter, Darrick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2.8%; Score 6; DB:
ilarity 100.0%; Pred. No. 1.:
Conservative 0; Mismatches
                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Samuel X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Craig H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Aijun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
EXPRESSED
SWISSPROT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EXPRESSED
EXPRESSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EST_HUMAN HIT: BF347445.1, EVALUE 9.00e-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EXPRESSED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Thomas S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Susan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ED IN HBL100, SIGNAL = 1.5
ED IN BT474, SIGNAL = 1.4
ED IN ADULT LIVER, SIGNAL = 1.4
ED IN FETAL LIVER, SIGNAL = 1.5
ED IN BONE MARROW, SIGNAL = 1.2
ED IN LUNG, SIGNAL = 1.6
ED IN BRAIN, SIGNAL = 2.6
ED IN HELA, SIGNAL = 2.1
ED IN HELA, SIGNAL = 2.1
ED IN HELA, SIGNAL = 5.2
EN HELA, SIGNAL = 5.2
                                                                                                                        Score 6; I
; Pred. No.
                                                                                              0;
                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 10; L.,
No. 1.5e+02;
0;
                                                                                                                        DB 9; Le
o. 1.6e+02;
                                                                                                                                               Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 93;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>۰</u>
                                                                                              0;
                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                              0
```

```
US-09-895-793-933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ; ORGANISM: Homo sapiens US-09-895-793-933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ; Sequence 933, F; Publication No.
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                       US-09-895-814-933
                                                                                                                                                                                                                                                                                                                                      RESULT 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Fanger, Gary R.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY
TITLE OF INVENTION: DIAGNOSIS OF PROSTATE CANCER
FILE REFERENCE: 210121.534C2
CURRENT FILIGNON NUMBER: US/09/895,793
CURRENT FILING DATE: 2001-06-29
NUMBER OF SEQ ID NOS: 982
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 933
LENGTH: 100
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL
                                                                                                                                                                                                                                                          GENERAL INFORMATION:
APPLICANT: Xu, Jiangchun
                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                          Sequence 933, Appropriate Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT
                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Xu, Jiangchun
APPLICANT: Dillon, Davin C.
                                                                       APPLICANT:
                                                                                                  APPLICANT:
                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                            APPLICANT:
                APPLICANT:
                                             APPLICANT:
                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                       APPLICANT:
   APPLICANT
                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                            169 ALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                  ALNSGS 7
                                                                                                  Day, Craig H.
Vedvick, Thomas
Carter, Darrick
Li, Samuel X.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Retter,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Harlocker,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mitcham, Jennifer L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Houghton, Raymond L.
Vinals de Bassols, Carlota
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Henderson, Robert A.
Hural, John
McNeill, Patricia D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Skeiky, Yasir A.W.
Hepler, William T.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Day, Craig H.
Vedvick, Thomas S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stolk,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Kalos, Michael D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Jiang,
                                                                                                                                                                                         Jiang, Yuqiu
Kalos, Michael D.
                                                                                                                                                                                                                                  Dillon, Davin C.
Mitcham, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Foy, Teresa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carter, Darrick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Application US/09895793
Hural, John
McNeill, Patricia D.
Houghton, Raymond L.
                                                                                                                                                           Retter, Marc W. Stolk, John A.
                                                                                                                                                                                                                      Harlocker, Susan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wang, Aijun
                                        Henderson, Robert A.
                                                      Skeiky, Yasir A.W.
Hepler, William T.
                                                                                    Wang, Aijun
                                                                                                                                                                                                                                                                                          Application US/09895814 o. US20020193296A1
                                                                                                                                                                                                                                                                                                                                                                                                                                       2.8%; Score 6; DB 9. Ilarity 100.0%; Pred. No. 1.0 Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ŪS20020192763A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Samuel X.
                                                                                                                              Craig H.
ick, Thomas S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              John A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Yuqiu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Marc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Susan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 9; Ler
o. 1.6e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 100;
                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>,,</u>
```

```
APPLICANT: Fanger, Gary R.

TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY AND TITLE OF INVENTION: DIAGNOSIS OF PROSTATE CANCER

FILE REFERENCE: 210121.427C26

CURRENT APPLICATION NUMBER: US/09/895,814

CURRENT FILING DATE: 2001-06-29

NUMBER OF SEQ ID NOS: 990

SOFTWARE: FASCSEQ for Windows Version 3.0

SEQ ID NO 933
LENGTH: 100

TYPE: PRI
ORGANISM: Homo sapiens
US-09-895-814-933
                                                                                                                                                                                                                                              FILE REFERENCE: 210121.427C33
CURRENT APPLICATION NUMBER: US/09/759,143
CURRENT FILING DATE: 2001-01-12
NUMBER OF SEQ ID NOS: 934
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 933
LENGTH: 100
TYPE; PRT
ORGANISM: Homo sapiens
US-09-759-143-933
                                 RESULT 34
US-09-780-669-933
                                                                                                             밁
                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 33
US-09-759-143-933
                                                                                                                                                                      Query Match 2.8%;
Best Local Similarity 100.0%;
Matches 6; Conservative (
Sequence 933, Application US/09780669 Patent No. US20020051977A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match 2.8%; Score 6; DB 9; L
Best Local Similarity 100.0%; Pred. No. 1.6e+02
Matches 6; Conservative 0; Mismatches 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 933,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Wang, Aijun
APPLICANT: Skeiky, Yasir A.W.
APPLICANT: Hepler, William
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY AND
TITLE OF INVENTION: DIAGNOSIS OF PROSTATE CANCER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                        169 ALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   169 ALNSGS 174
                                                                                                           2 ALNSGS 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US20020022248A1
                                                                                                                                                                                                                                                                                                                                         FastSEQ for Windows Version 3.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Day, Craig H.
Vedvick, Thomas S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fanger, Gary R. Retter, Marc W. Stolk, John A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Henderson, Robert A. Kalos, Michael D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Carter, Darrick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Harlocker, Susan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mitcham, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Dillon, Davin C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Jiang, Yuqui
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Vinals de Bassols, Carlota
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/09759143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Samuel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Jiangchun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Teresa
                                                                                                                                                                          2.8%; Score 6; DB 10; Le 100.0%; Pred. No. 1.6e+02; ve 0; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0; Indels
                                                                                                                                                                                                             Length 100;
                                                                                                                                                                            Indels
                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Caps
                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
APPLICANT: McNeill, Patricia D.
APPLICANT: McNeill, Raymond L.
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY AND
TITLE OF INVENTION: DIAGNOSIS OF PROSTATE CANCER
FILE REFERENCE: 210121.427C24
CURRENT APPLICATION NUMBER: US/09/780,669
CURRENT FILING DATE: 2001-02-09
NUMBER OF SEQ ID NOS: 943
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 933
LENGTH: 100
TYPE: PRT
ORGANISM: Homo sapiens
US-09-780-669-933
 밁
                                                                                                                                    ; LENGTH: 100
; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-822-827-933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                               US-09-822-827-933
                                                                                                                                                                                                  CURRENT APPLICATION NUMBER: US/09/822,827
CURRENT FILING DATE: 2001-03-28
NUMBER OF SEQ ID NOS: 982
SOFTWARE: FASESEQ for Windows Version 3.0
SEQ ID NO 933
                                                                                                                                                                                                                                                                                      Sequence 933, Application US/09822827

Patent No. US20020081680A1

GENERAL INFORMATION:

APPLICANT: Xu, Jiangchun

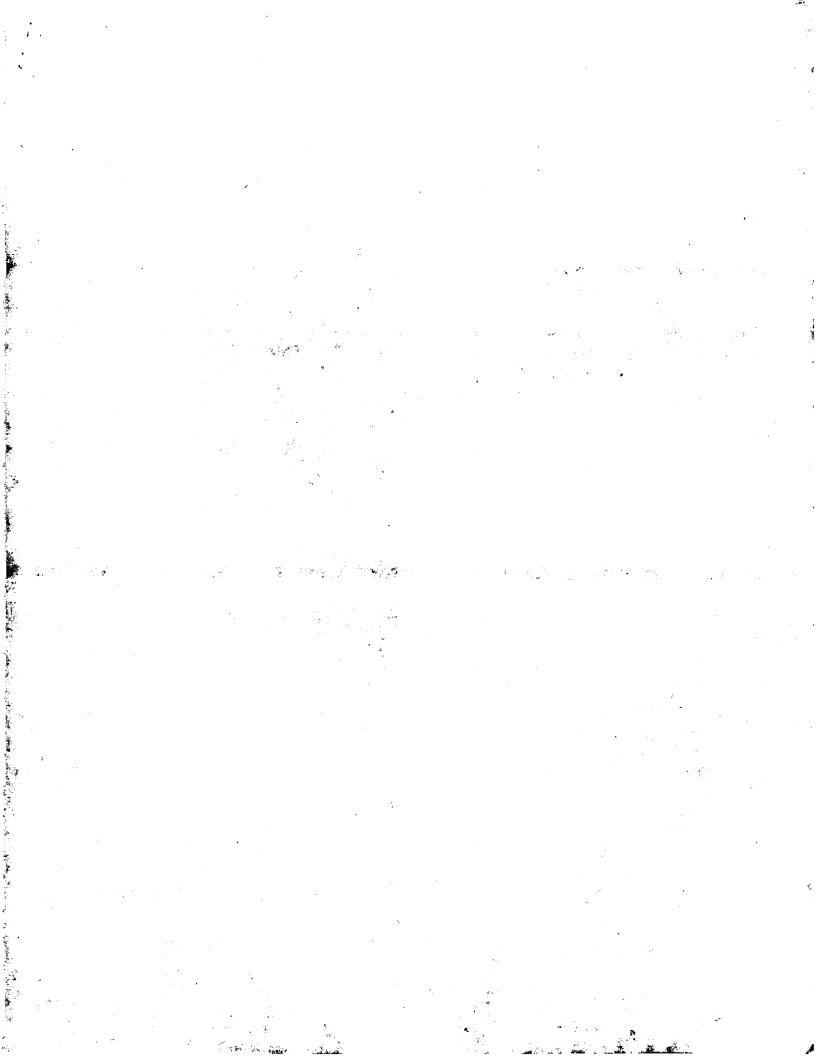
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE THERAPY AND
TITLE OF INVENTION: DIAGNOSIS OF PROSTATE CANCER
FILE REFERENCE: 210121.534C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match 2.8%; Score 6; DB 10; L
Best Local Similarity 100.0%; Pred. No. 1.6e+02;
Matches 6; Conservative 0; Mismatches 0;
                                                              Matches
                                                                                Query Match
Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                169 ALNSGS 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   169 ALNSGS 174
2 ALNSGS 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2 ALNSGS 7
                                                                6; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fanger, Gary R. Retter, Marc W. Stolk, John A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Xu, Jiangcnun
Dillon, Davin C.
Mitcham, Jennifer L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Skeiky, Yasir A.W.
Hepler, William
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Day, Craig H.
Vedvick, Thomas S.
Carter, Darrick
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Henderson, Robert
Kalos, Michael D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Wang, Aijun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Jiang, Yuqui
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Harlocker, Susan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Samuel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Jiangchun
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  John
                                                              2.8%; Score 6; DB:
100.0%; Pred. No. 1.0
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Robert
                                                         DB 10; L-
NO. 1.6e+02;
0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 100;
                                                                                                  Length 100;
                                                                  Indels
                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   <u>,</u>
                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0
```

RESULT 36 US-09-796-692-1175

```
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; TYPE: PRT
; ORGANISM: Homo sapiens
US-09-796-692-1175
                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-957-708-30
SEQ ID NO 30
LENGTH: 122
TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 1175, Application US/09796692
Publication No. US20020198362A1
                                                                                                                                                                                                                                                                                                                                                                                                Sequence 30, Application US/09957708
Publication No. US20030031678A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match 2.8%; Score 6; 1
Best Local Similarity 100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Gaiger, Alexander
APPLICANT: Algate, Paul A.
APPLICANT: Mannion, Jane
APPLICANT: Mannion, Jane
TITLE OF INVENTION: COMPOSITIONS AND METHODS FOR THE DETECTION, DIAGNOSIS AND THERAPY
TITLE OF INVENTION: HEMATOLOGICAL MALIGNANCIES
FILE REFERENCE: 2077, 001200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2000-05-01
PRIOR APPLICATION NUMBER: 60/202,084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR FILING DATE: 2000-04-28
PRIOR APPLICATION NUMBER: 60/200,779
PRIOR FILING DATE: 2000-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION NUMBER: 60/190,479
PRIOR FILING DATE: 2000-03-17
PRIOR APPLICATION NUMBER: 60/200,545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/09/796,692
CURRENT FILING DATE: 2001-03-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE: 2000-04-27
PRIOR APPLICATION NUMBER: 60/200,303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION NUMBER: 60/186,126 PRIOR FILING DATE: 2000-03-01
                                                                 PRIOR APPLICATION NUMBER: 60/233,746
PRIOR FILING DATE: 2000-09-19
NUMBER OF SEQ ID NOS: 40
SOFTWARE: Patentin Ver. 2.1
                                                                                                                                                                                                         APPLICANT: Cafferkey, Robert
APPLICANT: Al1, Shujath
TITLE OF INVENTION: Compositions and Methods Relating to Prostate Specific
TITLE OF INVENTION: Genes
FILE REFERENCE: DEX-0239
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR FILING DATE: 2000-08-03
PRIOR APPLICATION NUMBER: 60/223,416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION NUMBER: 60/206,201
PRIOR FILING DATE: 2000-05-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
                                                                                                                                                              CURRENT APPLICATION NUMBER: US/09/957,708
CURRENT FILING DATE: 2001-09-19
                                                                                                                                                                                                                                                                                                                            APPLICANT: Sun, Yongming APPLICANT: Recipon, Herve
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR APPLICATION NUMBER: 60/223,378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR FILING DATE: 2000-07-14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR APPLICATION NUMBER: 60/218,950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           209 VVLRGV 214
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/222,903
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/200,999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000-05-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000-08-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2000-08-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2001-03-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9; Le
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 109;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
```

```
; ORGANISM: Homo sapiens US-09-957-708-30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 38
US-09-738-626-5132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Corynebacterium glutamicum US-09-738-626-5132
                                                                                                                                                                                                                                                                                                      US-09-764-853-560
                                                                                                                                              GENERAL INFORMATION:
APPLICANT: ROSEN et al.
TITLE OF INVENTION: Nucleic Acids, Proteins,
FILE REFERENCE: PJZ06
FURRENT APPLICATION NUMBER: US/09/764,853
CURRENT FILING DATE: 2001-01-17
CURRENT FILING DATE: 2001-01-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query-Match 2.8%; Score 6; DB Best Local Similarity 100.0%; Pred. No. 1. Matches 6; Conservative 0; Mismatches
                                                 Prior application data removed - consult PALM or file wrapper NUMBER OF SEQ ID NOS: 939
SOFTWARE: PatentIn Ver. 2.0
SEQ ID NO 560
LENGTH: 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PatentIn ver. 3.0 SEQ ID NO 5132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 5132, Application US/09738626 Publication No. US20020197605A1
                                                                                                                                                                                                                                                               Sequence 560, Application US/09764853
Patent No. US20020090672A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local Similarity
Matches 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION NUMBER: JP 00/159162
PRIOR FILING DATE: 2000-04-07
PRIOR APPLICATION NUMBER: JP 00/280988
PRIOR FILING DATE: 2000-08-03
NUMBER OF SEQ ID NOS: 7059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: 249-125
CURRENT APPLICATION NUMBER: US/09/738,626
CURRENT FILING DATE: 2000-12-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION: NOVEL POLYNUCLEOTIDES FILE REFERENCE: 249-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: NAKAGAWA, SATOSHI
APPLICANT: MIZOGUCHI, HIROSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR APPLICATION NUMBER: JP 99/377484
PRIOR FILING DATE: 1999-12-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
ORGANISM: Homo sapiens 09-764-853-560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: PRT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               133 PVEEVK 138
                                                                                                                                                                                                                                                                                                                                                                                                               154 FADDAE 159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           38 PVEEVK 43
                                                                                                                                                                                                                                                                                                                                                                                     44 FADDAE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATEISHI, NAOKO SENOH, AKIHIRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HAYASHI, MIKIRO OCHIAI, KEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AKIO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HARUHIKO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MASATO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 6; ; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 9; Le
o. 2.1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 9; Les
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 122;
                                                                                                                                                                                                               Antibodies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
```

```
GENERAL INFORMATION:
APPLICANT: Haselbeck, Robert
APPLICANT: Ohlsen, Kari L.
APPLICANT: Ohlsen, Kari L.
APPLICANT: Zyskind, Judith W.
APPLICANT: Wall, Daniel
APPLICANT: Trawick, John D.
APPLICANT: Trawick, John D.
APPLICANT: Yamamoto, Robert T.
APPLICANT: Xu, H. Howard
TITLE OF INVENTION: Identification of Essential Genes in
TITLE OF INVENTION: Prokaryotes
FILE REFERENCE: ELITRA.011A
CURRENT APPLICATION NUMBER: US/09/815,242
CURRENT APPLICATION NUMBER: 60/191,078
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR FILING DATE: 2000-03-21
PRIOR APPLICATION NUMBER: 60/206,848
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/207,727
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/242,578
PRIOR APPLICATION NUMBER: 60/243,625
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,625
PRIOR APPLICATION NUMBER: 60/253,025
PRIOR APPLICATION NUMBER: 60/259,308
PRIOR FILING DATE: 2001-02-16
NUMBER OF SEQ ID NOS: 14110
SEQ ID NO 13435
LENGTH: 150
TYPE: PRT
ORGANISM: Streptococcus pneumoniae
US-09-815-242-13435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 40
US-09-815-242-13435
; Sequence 13435, Application US/09815242
; Patent NO. US20020061569A1
: GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
Search completed: April 9, 2003, 14:54:12 Job time : 54 secs
                                                                                                          밁
                                                                                                                                                                                                        Query Match
Best Local Similarity
Matches 6; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match 2.8%; Score 6; DB 10; Length 139; Best Local Similarity 100.0%; Pred. No. 2.2e+02; Matches 6; Conservative 0; Mismatches 0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           116 QAAVIL 121
                                                                                                                                                       158 AEGKAI 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               69 QAAVIL 74
                                                                                                        63 AEGKAI 68
                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                      2.8%; Score 6; DB 10; Length 150; 100.0%; Pred. No. 2.3e+02; tive 0; Mismatches 0; Indels
                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                      <u>,,</u>
```



```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum DB seq length: 0
Maximum DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Word size
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Post-processing: Listing first 1000 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
      226
227
227
228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2
218
1 AEVTASCTKRVESY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIR 73:*
1: pir1:
2: pir2:
3: pir3:
4: pir4:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OLIGO
Gapop 60.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            April 9, 2003, 14:40:48 ; Search time 44 Seconds
(without alignments)
476.302 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     283224 seqs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AEVTASCTKRVESYNYLVDY.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pir1: *
pir2: *
pir3: *
pir4: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
    GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96134422 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gapext 60
   G8460272
G8460292
S70262
S70262
S54196
C82619
AC3318
I40111
I40111
I40112
I40275
S69920
S69920
G70218
G70218
S69921
G70277
I40275
I4027
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .QEQILVTEEVVVLRGVNFAF
                                                                                                                                          outer surface protouter surface prot
Hetl protein XF193
sodium-dependent p
outer surface protouter surface surface protouter surface protouter surface surface protouter surface protouter surface protouter surface protouter surface protouter surface surface protouter surface protout
                                                                                                                                                                                                                                                                                                                                                                                                outer surface prot
En/Spm-like transp
outer surface prot
outer surface prot
hypothetical proce iron (iii) abc tra conserved hypothet hypothetical prote cobalamin biosynth probable ABC trans probable phosphati
                                                                                                                              outer surface prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Description
                                                                                                                probable two-compo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   218
    FADO2
JC2283
AC0071
AC2823
AC97196
D69934
D81381
B60497
H65073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUBY
G90744
C85595
                                                                                                                                                          GDRB

A83974

A855124

S751015

A70945

A70945

C82887

D0872

C82887

D89818

A46561

A83041

A83041
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                B87458
S48690
T41731
AE1645
S03117
B90584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G64822
H852172
T04893
T18426
C96805
C96805
AP1350
E85054
T701474
T701474
T701474
T3056
S32373
AB2276
                                                                                                                                                                                                                                                                                                                                                                                                                   A84450
S52275
AE1163
AE1522
```

hypothetical prote Ig heavy chain V-J conserved hypothet purine nucleoside 7,8-dihydroneopter MHC class II histo conserved hypothet uncharacterized profilin II - slim ribosomal protein probable membrane hypothetical prote chey-like receiver cell wall enzyme h transcription term MHC class II histo hypothetical prote hypothetical prote hypothetical prote hypothetical prote

class II histocomp
30S ribosomal prote
hypothetical prote
conserved hypothet
hypothetical prote

hypothetical prote thioredoxin - Chlo alaR protein - Str

hypothetical prote glutaredoxin - rab hypothetical prote ubiquinol-cytochro probable proteinas holin from bacteri

probable ABC-type
ATF-binding compon
ATF-binding compon
conserved hypothet
phosphoglycerate k
ADF, ATF carrier pr
hypothetical prote
probable tail tip
hypothetical prote
hypothetical prote
hypothetical prote
probable ubiquitin
nonstructural prot
glucose-6-phosphat
probable transport
glucose-6-phosphat
probable membrane
flagellar hook-ass
membrane-associate
hypothetical prote
probable transport
probable transport
probable membrane
flagellar hook-ass
membrane-associate
hypothetical prote
hypothetical prote
hypothetical prote
hypothetical prote
antigen 332- mala
endopeptidase Clp
probable transposo
hypothetical prote
antigen 332- mala
endopeptidase Clp
probable transposo
hypothetical prote
antigen 32- mala
endopeptidase Clp
probable transposo
hypothetical prote
hypothetical prote
conserved hypothet
ATF-binding casset
DNA-binding protei
two-component hybr
hypothetical prote

	172 173 174	1 -1 -1	<b>M M</b>	<b>₼</b>	. m a	163	· m	ന വ	IN IN	I IN L	пи	UT U	nu	பா ம	4	44	4.	44	- 4-	140 141	139	137 138	136	134	132 133	131	129	128	126	124 125	123	121	119 120	118	_ `-	14 h	-	$\vdash$	. سر د	0	107	000	103
σ	ითთი	<b>,</b> o, o	თთ	თთ	തെ	, o, o	, o	თ თ	თ თ	. თ. ი	n on	o o	n or	თ თ	n 01	ი თ	, o	ი ი	ח סח	თ თ	, on c	עס ע	თ თ	. 0	თ თ	σ 0	ח סו	თ თ	, o,	<b>D</b> O	თ თ	, o.	თ თ	o (	עס ע	σ 0	n 01	თ თ	, o.	თ თ	o 0	<b>,</b> o o	<b>,</b> 0,
٠	 	22.2	2.8 2.8	2 . 8 8		 	20 0	2 2 8 8	2 2 8 8	22.	ນ ເນ ໝ ໝ	2.8	٥ ر ۵ ه	2. 8	) N 0 00	2 . 8 8	) N ) 80	2. 8		2 N 8 8	21	v 2 B B	2. 8	2.8	N N B B	2 . 8	ນ ເນ • ຍ	2 · 8 ·	, N	N N	2.0	) N ) B	N N 	2 . 8	2 2	2.6	ນ ເນ ຫ ເຫ	2 . 8 8	) N O B	N N B B	2.0		) N ) B
223	221 223 223	216	213 216	213 213	213	212	211	210 211	209 210	209	206	204	202	193	192	192	189	188	186	184 184	181	179 179	178	178	175 175	171	171	170	164	157	156	154	153 154	152	150	150	148	14/ 147	147	141 146	141	140	135
	. N N N	N N	N N	ผผ	N 1	N N	งง	<sub>N</sub> N	NN	101	ง ស	2	ں ں	N	ง ผ	N	N	N	งง	N	N	งง	N	N	N	2	b	N	N	งผ	2	N		N	งง	Ν,	งง	N V	N	ผ ผ	N	ο N F	, 10
36827	T44508 AB3018 H83808	34450 32227	9504 9504	35673 34854	1088	0254	0272	1527	0273	10219	0736	1022	MSHS	6723	1210	4277	4451	7193	3992	6862 1451	8670	9727	8900	0305	6591 9848	5213	4486	5554	5589	7255 5720	1820	4140	AL'S	4740	4952	8122	0890	7278	4492	3834 0524	0690	0218	5945
O	E ħ O (	1 to 17	rt e	מ א	סיים י		י ב	<b>ט</b> יס	₽0	т.	4 7	<b>.</b>	à,⊩	a a	ř.#	<b>.</b> # 0	ָס' ט	0,,5	r.e	ַלָּיִ אַ	. <b>α</b> .;	a, b,	ָּבָּ	mo	Q L	·#:		<b>.</b> 2		n. 0	9.5	. Q	16	· Q.	h fi	50	מינ	PTS	, d.	ָּיָם בָּי	: Þ.	t ti	i p
acton	merB1 pro thiamin-p O-methylt	ypothe lkylme	ypothe lkylme	ypothe cfM pr	ypothe	uter s	ypothe	probable outer s	uter sı NA-(apı	lage11	-vinyl	ypothe!	ibrobl:	ypothei	ypother	ypothei	robable	ligope	ypothet	notosyı egA pro	cell div	iosynth voothet	ypothet	olybder	ncertei	hypothetical	pothet	/pothet	ranspos	ibosoma ibosoma	the	[≧.	leghemog	N	¥ ⊑	F 3	robable	rs syst	hemoglob	cobable	hypothet	flagella	pothet
9	protein ( 1-phospha /ltransfe	hypothetical prote alkylmercury lyase	tical process	otein E	tical F	urface urface	tical p	)le o-sia surface		ar basa	protoc	d Teoria	set gro	tical p	cical p	cical p	cold-	otide A	ical p	otein -	/ision	nesis o	cical p	lenum cof	ed hypo	ical prote	cical p	ical p	ase sl	d hypo l prot	ical	hyp	lobin	prot	rel:		gg.	9 =	in be	PTS	ical	7 77 1	4- <del>  4</del> -
-	limp late feras	prote lyase	yase	prote	prote	prot	prote	ialogl e prot	prot or a	1-bo	hlor	prote	growth	rote	rote	prote	-regu	ABC-t	rote	Rho	cont	of te	rote	acto	thet	rote	rote	rote	311125	ein	prote	thet	11.	, ,	rote p	prot	ssor	IA CO	a-I	syste	prote		rote
-					-													•																									
0	ก็ก็ที่ที่		NN	N N	, 10, 1	223	233	232	231	221	227	226	224	223	221	220	218	217	215	213 214	212	210 211	209	207	206	204	202	201	199	198	196	194	192 193	191	190 190	188	186 187	185	183 184	182	180	178	176 177
	2 7 6 5	2443	41 42	40	8 8	1 0 0	., ,,=			-																																	
ď	, o, o, o	44.3	41 42	40																	n 01	თთ	თ	n 01	თ თ	n on 1	<b>თ</b> თ	თ	n on	თ თ	. თ. ი	<i>w</i> w	თთ					σ (		თი	n on (	ח ס מ	ח סח
		444	42 6 2	40 6 2	000	n on o	n 01	<b>თ</b> თ	5 5	000	ი ი ი	, o, o	on on	. o. c	ກດ	000	ກດ	. n (	ກດ	0.0	งง	NN	2 1	งง	NN	) N	N N	NI	งผ	NN	เงเ	งง	NN	6 2	თ თ ი	. 0 (	ი ი ი ი	21	งง	22	ומנ	งผเ	νν
	n on on o	44 6 2.8	41 6 2.8 42 6 2.8	40 6 2.8	000	n on o	n 6 2.8	იი გ.გ.	6 2.8	22.0	6 6 2.8	6 2.8	50 50 N N N N N N N N N N N N N N N N N N N	5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5 6 2 2 8	0.00	ກ ດ ນ ພ. ສ 8	221	5 6 2 2 8	5 2.8	ນ ເນ • ໝ	N N 80 80	2.8	ນ ເນ ຫ ໝ	2 · 60 0	0 00	N N B B	2 !	o 00	N N 00 00	) (2 i	۷ ک ۵ ه	2.8	6 2.8	იი გ.	2.8	6 6 2.8	2.8	5 6 2 2 8	2.6	2.0	200	Σ 60
0000	6 2.8 280 4 6 2.8 281 2 7 2 8 281 2	43 6 2.8 274 2 44 6 2.8 278 2 45 6 2.8 279 2	41 6 2.8 273 2 42 6 2.8 274 2	40 6 2.8 272 2	6 2.8 271 2	6 2.8 267 2	6 2.8 265 2	6 2.8 264 2 6 2.8 264 2	6 2.8 264 2	6 2.8 264 2	6 2.8 264 2 6 2.8 264 2	6 2.8 264 2	6 2.8 264 I	6 2.8 263 2	6 2.8 261 2	6 2.8 260 2	6 2.8 260 2	6 2.8 259 2	6 2.8 254 2 6 2.8 258 2	6 2.8 254 2	2.8 253 2	2.8 250 2 2.8 253 2	2.8 249 2	2.8 249 2	2.8 249 2	2.8 247 2	2.8 247 2 2.8 247 2	2.8 247 2	2.8 246 2	2.8 245 Z 2.8 246 2	2.8 245	2.8 244 2	2.8 242 2	6 2.8 242 2	6 2.8 239 2	6 2.8 239 2	6 2.8 238 2 6 2.8 238 2	2.8 234 2	6 2.8 231 2 6 2.8 233 1	2.8 231 2	2.8 230 2	2.8 226 2 2.8 227 2	2.8 225 1
0000	5 2.8 280 5 2.8 280 7 2.8 281	43 6 2.8 274 2 44 6 2.8 278 2 45 6 2.8 279 2	41 6 2.8 273 2 42 6 2.8 274 2	40 6 2.8 272 2	6 2.8 271 2	6 2.8 267 2	6 2.8 265 2	6 2.8 264 2 6 2.8 264 2	6 2.8 264 2	6 2.8 264 2	6 2.8 264 2 6 2.8 264 2	6 2.8 264 2	6 2.8 264 I	6 2.8 263 2	6 2.8 261 2	6 2.8 260 2	6 2.8 260 2	6 2.8 259 2	6 2.8 254 2 6 2.8 258 2	6 2.8 254 2	2.8 253 2	2.8 250 2 2.8 253 2	2.8 249 2	2.8 249 2	2.8 249 2	2.8 247 2	2.8 247 2 2.8 247 2	2.8 247 2	2.8 246 2	2.8 245 Z 2.8 246 2	2.8 245	2.8 244 2	2.8 242 2	6 2.8 242 2	6 2.8 239 2	6 2.8 239 2	6 2.8 238 2 6 2.8 238 2	2.8 234 2	6 2.8 231 2 6 2.8 233 1	2.8 231 2	2.8 230 2	2.8 226 2 2.8 227 2	2.8 225 1
600000000000000000000000000000000000000	6 2.8 280 1 A71022 6 2.8 281 2 C83635 6 2.8 282 2 C64435	43 6 2.8 274 2 1/2001 44 6 2.8 276 2 1/2001 45 6 2.8 270 2 1/2461	41 6 2.8 273 2 AH0030 42 6 2.8 274 2 F86624	39 6 2.8 2/2 2 F/09/9 40 6 2.8 272 2 A72512	6 2.8 271 2 AE2383	6 2.8 267 2 JC4857	6 2.8 265 2 G71032 6 3.8 265 2 D75181	6 2.8 264 2 F83351 6 2.8 264 2 C95092	6 2.8 264 2 156056	6 2.8 264 2 A30529	6 2.8 264 2 S10989 6 2.8 264 2 S11650	6 2.8 264 2 A60497	6 2.8 264 1 HLMSEB	6 2.8 263 2 C75058	6 2.8 261 2 E95963 6 2.8 261 2 C75568	6 2.8 260 2 G87349	6 2.8 260 2 G75111 6 2.8 260 2 G75174	6 2.8 259 2 T05431	6 2.8 254 2 D64540 6 2.8 258 2 T11582	6 2.8 254 2 T22677	2.8 253 2 H89845	2.8 250 2 A70678 2.8 253 2 A69725	2.8 249 2 T10731	2.8 249 2 C84270 3.8 249 3 JO1881	2.8 249 2 \$45439	2.8 247 2 A81957	2.8 247 2 T02920 2.8 247 2 T09399	2.8 247 2 T09757	2.8 246 2 C81946 3.8 247 2 TTOSES	2.8 245 2 G64543 2.8 246 2 E83249	2.8 245 2 571963	2.8 244 2 D97281 2.8 244 2 F69260	2.8 242 2 T03801	6 2.8 242 2 T03796 ·	6 2.8 239 2 B69946 6 2.8 240 2 T04084	6 2.8 239 2 T03783	6 2.8 238 2 F69352 6 2.8 238 2 F98266	2.8 234 2 AG1167	6 2.8 231 2 AH1559 6 2.8 233 1 FVVFBA	2.8 231 2 AB1202	2.8 230 2 E87578 2.8 231 3 E82820	2.8 226 2 B75270 2.8 227 2 T47416	2.8 225 1 S73560 -2.8 225 2 T05334
600000000000000000000000000000000000000	6 2.8 280 1 A71022 6 2.8 281 2 C83635 6 2.8 282 2 C64435	43 6 2.8 274 2 C/2001 44 6 2.8 278 2 T47992 .hypoth 75 6 2.8 270 2 T34461 hypoth	41 6 2.8 273 2 AH0030 Shikim 42 6 2.8 274 2 F86624 Outer	39 6 2.8 2/2 2 F/09/9 40 6 2.8 272 2 A72512	6 2.8 271 2 AE2383	6 2.8 267 2 JC4857	6 2.8 265 2 G71032 6 3.8 265 2 D75181	6 2.8 264 2 F83351 6 2.8 264 2 C95092	6 2.8 264 2 156056	6 2.8 264 2 A30529	6 2.8 264 2 S10989 6 2.8 264 2 S11650	6 2.8 264 2 A60497	6 2.8 264 1 HLMSEB	6 2.8 263 2 C75058	6 2.8 261 2 E95963 6 2.8 261 2 C75568	6 2.8 260 2 G87349	6 2.8 260 2 G75111 6 2.8 260 2 G75174	6 2.8 259 2 T05431	6 2.8 254 2 D64540 6 2.8 258 2 T11582	6 2.8 254 2 T22677	2.8 253 2 H89845	2.8 250 2 A70678 2.8 253 2 A69725	2.8 249 2 T10731	2.8 249 2 C84270 3.8 249 3 JO1881	2.8 249 2 \$45439	2.8 247 2 A81957	2.8 247 2 T02920 2.8 247 2 T09399	2.8 247 2 T09757	2.8 246 2 C81946 3.8 247 2 TTOSES	2.8 245 2 G64543 2.8 246 2 E83249	2.8 245 2 571963	2.8 244 2 D97281 2.8 244 2 F69260	2.8 242 2 T03801	6 2.8 242 2 T03796 ·	6 2.8 239 2 B69946 6 2.8 240 2 T04084	6 2.8 239 2 T03783	6 2.8 238 2 F69352 6 2.8 238 2 F98266	2.8 234 2 AG1167	6 2.8 231 2 AH1559 6 2.8 233 1 FVVFBA	2.8 231 2 AB1202	2.8 230 2 E87578 2.8 231 3 E82820	2.8 226 2 B75270 2.8 227 2 T47416	2.8 225 1 S73560 -2.8 225 2 T05334
600 400 600 600 600 600 600 600 600 600	6 2.8 280 4 6 2.8 281 2 7 2 8 281 2	43 6 2.8 274 2 C/2001 44 6 2.8 278 2 T47992 hypothetical	41 6 2.8 273 2 AH0030 SNIKIMAT 42 6 2.8 274 2 F88624 OULT THE	39 6 2.8 2/2 2 F/09/9 40 6 2.8 272 2 A72512	6 2.8 271 2 AE2383	6 2.8 267 2 JC4857 hepatoca 6 2.8 267 2 JC4857 RHR2 DIO	6 2.8 265 2 G71032 6 3.8 265 2 D75181	6 2.8 264 2 F83351 6 2.8 264 2 C95092	6 2.8 264 2 156056	6 2.8 264 2 A30529	6 2.8 264 2 S10989 6 2.8 264 2 S11650	6 2.8 264 2 A60497	6 2.8 264 1 HLMSEB	6 2.8 263 2 C75058	6 2.8 261 2 E95963 6 2.8 261 2 C75568	6 2.8 260 2 G87349	6 2.8 260 2 G75111 6 2.8 260 2 G75174	6 2.8 259 2 T05431	6 2.8 254 2 D64540 6 2.8 258 2 T11582	6 2.8 254 2 T22677	2.8 253 2 H89845	2.8 250 2 A70678 2.8 253 2 A69725	2.8 249 2 T10731	2.8 249 2 C84270 3.8 249 3 JO1881	2.8 249 2 \$45439	2.8 247 2 A81957	2.8 247 2 T02920 2.8 247 2 T09399	2.8 247 2 T09757	2.8 246 2 C81946 3.8 247 2 TTOSES	2.8 245 2 G64543 2.8 246 2 E83249	2.8 245 2 571963	2.8 244 2 D97281 2.8 244 2 F69260	2.8 242 2	6 2.8 242 2 T03796 ·	6 2.8 239 2 B69946 6 2.8 240 2 T04084	6 2.8 239 2 T03783	6 2.8 238 2 F69352 6 2.8 238 2 F98266	2.8 234 2 AG1167	6 2.8 231 2 AH1559 6 2.8 233 1 FVVFBA	2.8 231 2 AB1202	2.8 230 2 E87578 2.8 231 3 E82820	2.8 226 2 B75270 ABC transport 2.8 227 2 T47416 qlutathione t	2.8 225 1 S73560 -2.8 225 2 T05334

310 311 312 313 314 316 316 317 319 319 319 320	294 295 297 298 300 300 300 300 300 300 300 300 300 30	282 282 282 283 286 286 286 287 288 299 299 299	266 267 268 277 277 277 277 277 277 277 277	249 250 251 252 253 254 255 257 258 259 259 261 261 263
<b>あ あ あ あ め あ め あ あ あ め </b>		· თ თ თ თ თ თ თ თ თ თ თ თ თ თ		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
314 316 317 319 319 319 320 320 321	307 308 308 309 310 310 310 311 312 312 312 313		22222222222222222222222222222222222222	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
				αααααααααααααααααααααααααααααααααααα
HASS1 HASS2 57275 57275 64303 64303 64303 64303 64303 6413 38413 38413 07048 07048	70313	93562 93562 84237 84237 85451 85483 87	21170 21170 21170 21170 2170 27168 27145 2714 27145 27145 27145 27145 27145 27145 27145 27145 27145 27145 2714 27145 27145 27145 27145 27145 27145 27145 27145 27145 27145 2714 27145 27145 27145 27145 2714 2714 2714 2714 2714 2714 2714 2714	B75131 S76306 S76312 S76312 S776317 S777237 S777237 B82748 H82748 H82748 H82748 H82749 D62749 D736662 D736662 D736662 D736662 D82749 D82749 D82749 D82749 D82749 D82749 D82749 D82749 D82749 D82749 D82749 D82749 D82749 D82749
	·			
chromosome part hypothetical pr triacylglycerol codorant recepto- comithine carban hypothetical pr hypothetical pr bone sialoprote probable exidor probable epoxid probable epoxid probable epoxid probable epoxid	hypothetical prote hypothetical prote hypothetical prote hypothetical prote who repeat protein probable hydroxyla probable transcrip hypothetical protein hypothetical protein hypothetical protein acetyl-coenzyme A acetyl-coenzyme A acetyl-coenzyme A acetyl-coenzyme N acetyl-coenzym	ABC-ct ABC-ct hypotl prote flage probal hypotl hypotl transc trwin Erwin Brwin Brwin	hypotl hypotl n-hyda arylar arylar mannor phena hypotl hypotl hypotl hypotl hypotl hypotl hypotl hypotl hypotl hypotl hypotl	3-methyl-2-oxobuta transposase sl1043 transposase slr035 transposase slr1035 transposase slr135 transposase sll199 hypothetical prote hypothetical prote methyl-accepting c probable 3-methyl- hypothetical prote hypothetical prote hypothetical prote panthotenate synth hypothetical prote panthotenate synth
osome   netica /lglyc /lglyc nt rec nine c netica netica sialop ole ep ole ep	netica netica netica netica netica netica netica netica lrecte netica luding l-coen levin lavin	petical netical netical netical netical netical netical netical netical netical retical retical netical netica	netica netica nine N nine N nine N nine N netica netica netica netica netica	nyl-2- posase po
0000HO03H 0H	aal prote aal prote al prote al prote protein ydroxyla ydroxyla ped DNA p ranscrip al prote al prote al protei al protei al protei al protei al protei prote	gaprotice of the protice of the prot	poprot poprot ylamin -acety -acety iosynt iosynt prot prot prot l prot l prot l prot	sl104 sl104 sl702 sl702 sl702 sl703 sl713 sl713 sl7119 l prot
1111 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	••••• 4 P P • • • • • • • • • • • • • •	припочи припочи	• • • • • • • • • • • • • • • • • • •	# W W W W W O O O O O O O O O O O O O O
3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	367 368 370 371 372 373 374 375 376 376 378 379 380 381 382	355 355 355 356 360 366 366	340 340 341 342 343 344 346 347 348 348 352	325 327 328 327 330 331 333 335 337
<b>თ თ თ თ თ თ თ თ თ თ თ</b>	. თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ		. თ თ თ თ თ თ თ თ თ თ თ თ თ თ	n a a a a a a a a a a a a a a a a a a
361 362 363 366 366 367	3449 3449 3549 3571 3571 3571 3571 3571 3571 3571 3571			3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
				00000000100100000000000000000000000000
371181 184187 386248 1F2459 310847 723220 346305 346305 375167 395197 395197	T41495 T41495 G97121 T21106 JQ2321 T431311 H97636 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860 AB2860	141498 1741498 1751792 187605 187605 187605 187605 175	7174810 7723810 7723810 77238113 772391272 773653 773653 773653 773653 773653 773653 773653 773653 773653 773653	A37842 F75365 AG19365 AG19563 S57089 AE1134 AE1134 P95889 F95889 VMUT21 AG43221 G643221 G643221 G64323 C84620 C84620
probable 2-isoprop hypothetical prote protein T23J18.11 hypothetical prote collagen alpha 2(I hypothetical prote dihydrodipicolinat hypothetical prote alanine racemase ( mtlK protein (AF00) peptidoglycan acet leucine-, isoleuci	protein plsx - Syn DNA (appurintc or a gcpE protein [impo hypothetical prote ALI protein - Indi hypothetical prote N5, N10-methylenete monoxygenase [imp D-alanine-D-alanin ALI protein - toma hypothetical prote hypothetical prote hypothetical prote hypothetical prote hypothetical prote probable NTP pyrop ATP-dependent RNA	DNA (apurinic or enolase related (conserved hypothetical prot ATP-dependent RNA hypothetical prot transcription act lima protetin - ps hypothetical prot phosphoserine pho anthranilate phosprobable oxidored	dehydrogenase - The dehydrogenase - The sensory transducti HflC protein (EC 3 probable integral probable integral probable integral probable integral probable integral probable ABC-type conserved hypothetical protein methanol dehydroge transcription regulutamate/glutamin hypothetical protein proporteital protein abc-ribosylglycohy	hypothetical prot conserved hypothe hypothetical prot probable DNA-(apu hypothetical prot oxetanocin A resi hypothetical prot probable dehydrog B-cell receptor a VGG expression si oxidoreductase At integrase homolog pTS system, manno phosphotransferase hypothetical prot hypothetical prot

^																																																																	
	466 467	465	464	462	461	460	4 5 0	4.0	44.0	44	454	453	452	451	450	449	448	447	446	445	444	444	441	7 4	4 4	٠ با د د د	\$ G \	44.6	435	434	433	432	431	430	429	428	427	420	424	423	422	421	420	419	412	416	415	414	413	411	410	409	408	407	406	405	403	402	401	400	399	302	396	395	
	ש פ	6	o 0	n 0	σ	σ,	ש כ	nσ	۰ ۵	۰ ۵	, o	, σ	. 0	, O1	o.	ο ο	6	თ	თ	თ (	თ (	J (	א כ	n o	n o	n o	η σ	<b>,</b> 0	, 0	۰ م	O	თ	ი	თ	σ,	თ (	ס ת	nσ	n 0	, o	σ	თ	o.	σ (	η σ	, o	σ	σ,	თ ი	nσ	<b>ο</b>	σ,	σ	თ	σ,	თ თ	n 01	, O	0	6	o (	ח ס	n 01	n	
	N N B B	2.8	N N	ه د د	2.8	2.8	N 10		0 00	) N	. 00	. 8			2.8	2.00	2.8	2.8	2.8	2.8	2 !	» :	٠ ٠	) N		0 0	) N	) N	) N	2.8	2.8	2.8	2 8	2.8	2 .	2 !	۰ د ۵ د	) . D Q	) K	. 8	2.8	2.8	2 .	 	υ . Β α	. 8	2.8	2 8	 	υ . 10 00		2.8	2.8	2.8	2.8	N 4 00 00	) N	2.8	2.8	2.8	 	υ .	) N	2.8	
	420 422																																																																
	2 E7																																																																
	E75274 S52790	6687	2968	2843	8960	0608	5112	2008	9838	1191	1617	5502	000	5206	MSD	0524	7262	7741	0356	3528	0764	1679	5573	9711	7777	000	0 4	1247	2126	0002	3529	1148	1399	675	SGM	7006	370	7030	73.66	703	981	1614	601	738	987	1099	)261	647	1147	7301	296	955	944	396	350	C98064	0 00	876	895	671	533	631	272	692	
	conserved hypothet	hypo	coll	neat	heat	heat	prob	Soud	unkno	- wor	hypot	prob	probal	malto	cathe	hypot	2-oct	hypot	hypot	Boyd	hypothetical prote	hypot	nroh:	יוותרמו	mutanta t	hypot	20010	Isoud	nypot	DNA-c	flage	hypot	phosi	phosphoglycerate k	lsoud	histi	ביים ליונים	nhoer	propa	trans	hypot	proba	oligo	hypot	hypothetical prote	prote	hypot	H+-tr	3-Hyd	uncha	conse	pepti	proba	proba	proba	alanir	dou-d	proba	hypot	hypot	hypothetical prot	d-deh-r arant	- j	alanine	
	conserved h	thetic	iqin-2	Shock	shock	shock	able a	ATBOUG	rd um	rrini	chetic	able t	apre a	ose tr	ursde	chetic	apren	chetic	hetic	phogly	hetic	hetic	מאלים מאלים	ייי בייי	יום כדכ היום כדכ	, אם ליד כי	֓֓֜֜֜֜֜֜֜֜֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	AT Bour	netic	irect	llar	hetic	hogly	hogly	hogly	dine	1 to 1	ACC ACC	in a di	cript	hetica	ble m	peptio	hetica	het ic	in Fl	hetica	anspo	roxya	mcharacterized co	rved I	dogly	ble su	)le	le	T a	íΕ	ble L	hetica	hetica	hetica	monthydel			
	hypoti	al pro	ind -	prot	prote	prot	nkyrii	cerace	ocein	cy inc	al pro	MO-COL	rsenic	anspoi	D (EC	al pro	y1-6-r	al pro	al pro	cerate	al pro	al pro	Cetyl	לפרעון.	מד הייני	tical pro	TOTEGE	cerate	ar pro	ed DNZ	hook r	al pro	cerate	cerate	cerate	kinase	- Afri	ceryuro	d ado	ion ta	al pro	embran	de tra	al pro	al prote	8A12.2	al pro	rting	cyl-Cc	rized ord tr	nypoch	can ac	sugar up	POLYHYDRO	acetyltr	acemase	denyo	-alani	tical prote	al prot	al prot	eteuitoo. Sorokiien	nydrog	dehydrogen	
1	net	ote	nan	מיד	nie	ein	ז-ד	7 7	7.1	ğ	ote	odi	d	[ 7	•	ote	net	ote	te	*	ot e	9 6	3 5	֝֞֞֝֞֝֞֝֞֝֓֞֝֓֞֝֓֓֓֓֓֞֝֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	ָּבְיה ה	ל ה מ	ם ל	3 7	9.75	ס	ro	)te	*	≽, o	ਨ 	Ļ	ָ מי	٠ ٢	9 6	i ct	ře	Ō	ns	e d	ה ה ה	_	ě	tΨ	<b>≯</b> (	3 6	9 6	er	ήď	ŔŌ	ra	~ E	e i	ne	te	te	t e	ם מ	en	en	
																								-																																									
	539	53	ភ ដ	ט ה	5	53	S I	лu	100	1 0	1 0	5 2	1 0	1 0	52	52	52	52	51:	51	51	51	5 1	ה נ ה	л L	л (- 1)	л I	л U		0.0	500	505	504	503	502	501	500	400	4 4	4.96	495	494	493	492	491	4.6	488	487	486	4 4	4 4 0	482	481	480	479	478	472	475	474	473	472	471	469	468	
	о Ф	80	70	ח ט	44	ω	N 1		y C	<b>.</b>	· ·	1 01	, 0	1 #2		. ~	-	0	9	ω	7		J.,				- (		<i>,</i>	, `		,	-	~						, ,	,		_										•	_	_	_	-								
	თ თ	თ	σ (	ח ס	· σ	σ	σ (	ם מ	٠ ٥	η σ	n	n 0	٠ ٥	חס	σ	, o	, o	. o	σ	თ	o.	σ,	σ, (	ח מ	א פ	n (	ח פ	n o	nσ	, σ	, o	, o	თ	σ	თ	σ	σ (	מ מ	ם ע	n o	n 01	, O	σ	σ,	თ ი	n o	9	0	σ (	σ 0	nσ	0	, O	Ø	0	σ (	ם מ	n 0	n 01	, O	σ	on (	<b>η</b> σ	<b>,</b> 0	
	22. 88																																																																
	505 506																																																																
	2 E8																																																														2 A819		
	E83918 AD1119	7436	3857	7181	2308	0883	6384	9650	200	7 / 7	2007	0847	3 6	1000	0 1 4	6346	3350	0856	2476	0408	1044	0086	2062	8597	1924	1079	777	2744	2710	7467	8189	9131	8987	8041	5328	8673	9290	1158	7075	7 6 6 C C	6037	0407	5213	3731	7211	0000	9977	6207	2755	6672	994	1124	0111	3197	2410	2237	315	л д л д	2350	1905	1329	1173	1933	1788	,
																			٠																																														
	carbo	pepti	anthr	mater	very-	proba	proba	hypot	hypot	200	N-ALLI	Cardi	2 4 4	Catar	Carar	propa	alkal	ATP 8	proba	sulfa	aspar	hypot:	sulfa	zinc	hypot	hypot	sulfa.	probal	2000		nypoci	inosi	trans	phospl	DNA-d	hypotl	late	hypotl	D-xvl	מאומס.	prepn	conse:	tldd	hypotl	glyco	STUCE	H+-tra	EMP47	GTP-b:	hypoti	hypoth	hieti.	X-Pro	nucleo	alkali	histic	probak	מאַם (פּוּ	hypotr	hypoti	phosph	malate	probak	nypotnet	
	cytoch	dogly	anilat	nal ti	- fuor	ble ai	ble pı	hetica	7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	300	- MODEL	11011	, 1454	711711	11011	יוייים	id our	Cruzin	rd erg	te ade	tate a	hetica	te ade	finger	netica	netica	e ade	ole D-	COAC	יייייייייייייייייייייייייייייייייייייי	TECTO	tol 1,	cripti	hoglyc	irecte	netica	embryo	letica	rd-esc	20000	enace	rved h	protei	netica	3yltra	ין אין אין	rodsur	prote	inding	netica	net i ca	linol	amino	nucleoporin hom	ne ph	linol	le MC	uera	letica	netica	phosphopyruvate	oxid	bable ma	n Ton	
	carboxypeptidase Flavocytochrome C	can bind	anthranilate synth	canscr	chain	ldehyd	rotēin f	nl pro	ממנים בי	Carbo	rl mura	aynt.		SVIII	T BYILL	Luenya	dobid	/Lase	cotein	1ylyne	ummoni	il pro	nylatı	prot	pro	l pro	nvlvl	lacta	מיל לילים	יוני פל	מיד לידט	4,5-0	on ac	phosphoglycerate k	MANG DIA	ul pro	mic ai	1 prot	oton :	1 2 2	denya.	ypoth	n PAB	1 prot	glycosyltransferas	O-COME	but 1.	in pro	prote	hypothetical prote	1 prot	de byda	peptic	homo.	osphat	histidinol dehydro	P-type	solphysuels	prote	prot		Q.	malate d	otnetical proce	
	ດຼື	bg.	Ę,	<u>ن</u> و	ם מ	าเก	Ħ	e d	7 S	ž	3 8	ב ב	ָ ֭֭֓֞֞֝֞֝֞֝֡֓֞֝	ה ה	5 6	5 (1	, מ	5	, 4	ť	a	ь	Ø	e i	0	0	H (	0 0	ה	0 0	י נ	; ;	. £	· *	ס.	e	Ş	6	ζ.	5 C	5 6	3 6	01	e	9 6	ວິເ	É	Ö	12.	e	o d	o a	מים	Ō	a	9		ď í	0	6 0	hγ	H	de '	- à	

607 609 610 611 612	600 600 600 600 600 600 600 600 600 600	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	596 598	593 594 595	590 591	587 588 589	282	583 583	580 581	577 578	575 576	572 573	570 571	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2 0 0 0 2 0 0 0 3 0 0	563 643	561 562	559 560	557 558	555 555	553 554	551 552	549 550	548	1 U U	55.44	541
<b>თთთთთთ</b>	<b>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</b>	თ თ თ თ	തെത	<b>0</b> 0 0	<b>ማ</b> ማ ማ :	თთთ	თთი	, n on on	თთσ	<b>,</b>	თ თ <b>თ</b>	ነ ው ው	თთ	<b>n</b> on o	<b>n</b> on or	ათთ	თთ	თთ	თთ	თთ	თთ	თ თ	თთ	თთ	ათთ	. <b>თ</b> . თ	, o, o,
00000000																											
589 589 589 597	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	571 571	562 562	559 560	556 557	555 555 555	553 554	5552	555 552	551 551	548 548	5 4 5 1 6 5	541	538 541	533	531 532	531 531	529 530	522 523	520 521	517 518	513 514	512 512	509 512	508	508	506 506
222222 1221231																											
T45539 S60154 S60159 T190159 D95953 A95949	30192 38087 75060	34038 34356 70169	34464 39789 24152	13657 13007 13155	15008	38108 31914 34125	3080 36244	14277	14277 14277	59371 90247	36881 11182	19229	15563 76617	31856	59140 76336	19058	20763 15865	70211 72175	18583	59470 16692	13201 70937	38770 70685	92444 94538	45868 54119	45867 95903	31147 31875	31479 05272
moaD protein [impo serine/threonine-s serine/threonine-s serine/threonine-s hypothetical prote hypothetical prote hypothetical prote	conse prote hydro	bypot phosi	proba hypot hypot	probable giucose t urocanase PA5100 [ probable medium-ch	nroce	high- carbo	hypot	nonstructural prot	nonst	proba	proba	mero;	hypot	L-2,4	catalase katX [imp cobalamin biosynth	hypot	hypot hypot	oligo hypot	gluco	diper	hypot	alpha hypot	NAD(I	hypothe NAD(P)	hypoth probab	threon	Flavoc fatty
prote ne/thr ne/thr thetic thetic thetic	erved bin BO	depend hetic	probable membr hypothetical p hypothetical p	able g anase able m	ein R1	affin on dio	chetic	ructu	ructu	able a repair	able t	fusio	hetic	1-diam	lase k	chetic ofilam	thetic	pepti hetic	bsylce	otide ABC	hetic	a-amyl chetic	P) tran able be	5 5	e c	ine	ac JY
in [impo eonine-s eonine-s al prote al prote al prote al prote	hypoth 454.6 e-4 co	ent DN al pro lpyruv	embrane al prot	PA5100	3D11.8 hydrat	ity gl xide c	rai pro al pro al pro	ral prot	ral pr	cid-Co	ranscr rotein	protei n prot	al pro	inobut	atX [i	al pro	al pro	de ABC	ramida	ABC tr	al prote	ase a	nshydro eta-ket		மு ப	ammoni	hrome elong
	t m [i.	i de de	00	g _ + !	2 B — ;	385	# # O	999	9 9 9	ָרָ מֵּי	ָל פֿיל	ei n	000	g Yr :	, 다립	t e	t t	о r	000	a n	ידיר סוס	ת ה ה ה	β <del>0</del>	g ç	9 0	1 P	a c
,																											
6 8 8 9 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	676 677 678	672 673	669 670 671	666 668	0 0 0 0 0 0 0 0 1 0 4 1	660 660	658 658	0000	655 653 4	650 651	648 649	645 645	644 644 644	641	639	636 637	634 635	632	620	628	626	624 625	622 623	620 621	619 819	616 617	614 615
<b>თთთთთთ</b>	თთთთσ		თთთ	თთთ	ოთთი	ח ח ח	თთσ	1 O O O	ח ח ח	. თ თ	თთთ		თ თ მ	n on o	. o. o.	თთ	თ თ	തത	ח מית	n 01 (	י סיי	<b>.</b>	თ თ	തത	o o	<b>0</b> 0	<b>0</b> 0
N N N N N N N N N N N N N N N N N N N																											
709 713 717 720 723 723	695 701 708	689	686 687 688	677 685	671 672	5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	666 666 666 666	0 0 0 0 0 0 0 0 0 0 4 1	5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	657 657	6 6 6 6 6 6 6 6	646 651	6440 6440	641	638	632 633	632 632	628 630	625	622	615	613 615	611 611	611 610	603	600 665	598 598
C28821 S30019 XNBYGM C85547 C71411 T49985 T00383	387316 387316 411501 390696	170024 F83843 286442	F23721 FYFFW D84248	\$65573 \$70762 \$65974	072346	390566 386843	787468 F58931 382130	170396	145588 164650	S32991 371377	137234 517691 C71438	AE2428 F90111	S17997 S55395	1835/1 1G2164	548921 436929	E84157 D83091	D82213 T22288	183200 878650	F33792	E69609	NH2028	190160 306977	119217 129487	F95898 390542	АВ1967 AD2397	S15004 S48509	A96685 T38403
																		٠									
1-pl acet glut prol hypx olic	inte inte hype	bypo prol	hyg hyg hyg hyg hyg hyg hyg hyg hyg hyg	phon	chen	323	NADI	Mx	arm	hypo	Rab acet	hypo	hypo	hypo	Y T	glu	prp	prol	337	CYT	Type Type	con	Į, Į	gtp.	ATP.	acet	prol

probable RING zinc probable nucleopor accetolactate synth transcription regultwo-component hybratical protein probable nodulatio gtp-binding protein hypothetical protein hypothetical protein hypothetical protein probable heavy-met cytochrome-c oxida protein probable heavy-met cytochrome-c oxida protein protein vC134 hypothetical protein vC134 hypothetical protein vC134 hypothetical protein hypothetical pr

738 739 740 741 742 743 744 744 745 755 755 755 755 755 755 755	7733433006657	77098765547 7009876554709887
, , , , , , , , , , , , , , , , , , ,	n n n n n n n n n n n n n n n n n n n	n
99999999999999999999999999999999999999	88888888888888888888888888888888888888	731 731 7444 7554 7556 7556 7556 7556 7556 7556
	0 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
9700 10720 10732 1	JC7174 JC7174 AD0170 AD	4464 6713 4183 4183 11654 1165
hypotheti hypotheti hypotheti hypotheti hypotheti hypotheti glycoprot glycoprot ghycobili suppresso EP-cadher protein F Lu-ECAMI hypotheti probable inter-alf nucleopor type XII inter-alf inter-alf inter-alf hypotheti	N, N-di comple probabl chlori probabl ribonu chlori probabl ribonu chlori probabl hypoth ATP sy arryl ry conses probabl intense contra contra probabl intense collul hypoth homeso neresidence neresidence neresidence neresidence neresidence neresidence neresidence hypoth hypot	Mutator DNA-pack hypothet 1-phosph polyribe ferrient hypothet hypothet hypothet ferrient complement 1-phosph 1-phosph single-c
hypothetical p hypothetical p hypothetical p hypothetical p glycoprotein B glycoprotein F ghycobilisome suppressor of STU2 protein F1N21. Lu-ECAM-1 protein F1N21. Lu-ECAM-	N.N-dimethylformam complement factor probable membrane chloride channel probable signal trribonucleoside-dip chloride channel probable sulfatase hypothetical prote hypothetical prote hypothetical prote hypothetical probable membrane internalin, peptid chltr probable membrane internalin, poptid chltr probable membrane internalin, poptid chltr probable pho conserved hypothet CHITR probable prote hypothetical pr	Mutator-like trans DNA-packaging prot hypothetical prote 1-phosphatidylinos polyribonucleotide ferrienterochelin hypothetical prote hypothetical prote hypothetical prote ferrienterobactin complement C2 prec 1-phosphatidylinos single-strand DNA- classical-complement classical-complement
rotter ro	hylformam hylformam membrane channel p sideal translati hypothet bable pho bable prote cal prote	-like transkaging protetical protethatidylinos onucleotide terochelin tical protetical protectical protetical protectical prot
	######################################	Ď Í Φ Φ O Î O O O O O O O O O O O O O O O O
811 811 813 814 814 815 816 817 821 821 822 823 824 828 828 829 829 830 831	775 7776 7778 7780 7781 7781 7782 7793 7793 7793 7793 7793 7793 7793 779	760 761 762 763 764 766 767 769 770 771
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	<b>ភ</b> ព ១ ១ ១ ១ ១ ១ ១ ១ ១ ១ ១ ១ ១ ១
		o o o o o o o o o o o o o o o o o o o
	1014 1012 1022 1022 1022 1023 1024 1034 1034 1042 1042 1042 1042 1042 1061 1072 1077 1077 1077 1077 1077 1077 107	
		0000000+00+000
T49726 T49726 FE97177 FE97177 T26377 T47485 T477885 T477885 T477885 T4725233 C96767 C96767 T138670 T100250 VCBEM7 T42238 T42238 T559823 T743267 T743267 T743267 T743267 T743268	T18759 T18759 T51257 T50928 S18251 T305161 T305164 T23847 R62187	103467 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381 1AD2381
hypothetical prote mannosyltransfaras alpha-glucosidase hypothetical prote beta-tubulin cofac ATP-dependent exon hypothetical prote multidrug resistan hypothetical prote multidrug resistan hypothetical prote MEGF2 protein-tyrosine-phypothetical prote MEGF2 protein or capsid prote collagen alpha 2(I DNA-directed RNA probable membrane multidrug resistan probable PPE prote DNA polymerase III	hypothetical prote conserved hypothet calmodulin-binding calmodulin-binding calmodulin-binding collagen alpha 1(x BIG-1 protein - rabeta-galactosidase beta-galactosidase beta-galactosidase hypothetical prote hypothetical prote hypothetical prote hypothetical prote hypothetical prote protein F41H10.4 [neurofilament trip hypothetical prote isoleucyl-tRNA syn probable membrane HIV-1 retropepsin hypothetical protein - Maed AP-3 complex beta-3 protein kinase - s AP3-complex beta-3 protein kinase - s AP3-complex beta-3 probable coiled-co exodeoxyribonuclea integrin - fruit f CAMP-dependent cel pyruvate: ferredoxi DNA-directed RNA probable dehydrogen proline dehydrogen hypothetical prote pyruvate (flavodox DNA-directed DNA pprobable purine nu	MADH dehydrogen membrane alanyl type I site-spe collagen alpha alanine-tRNA li membrane alanyl hypothetical protein kinase F7Al9.3 protein kinase F7Al9.3 protein probable AAA-ty hypothetical probable p
etical glucos glucos glucos glucos etical nubulin nubulin etical etical rug res etical prote etical protes etical	hetical proterved hypothem dulin-binding dulin-binding gen alpha 1. galactosidas general protein - regalactosidas general protein - regalactosidas general protein - regalactosidas general protein - retical protein - retical protein - retropepadent trihetical protein - retropepadent retropepadent retropepadent - retro	dehydrogenase ane alanyl am I site-specif gen alpha 2 (I gen alpha 2 (I ne-tRNA ligas ane alanyl am hetical prote in kinase C ( 1.3 protein - ble AAA-type hetical prote
prote sidase sidase prote coxon coxon prote prote sistan prote sistan prote sistan prote sistan prote sistan prote	prote prote prote prote prote produce prote prot	genase  jenase  jenase  jenase  jenase  jenase  ligas  ligas  ligas  jenase  j

999 909 900 900 900 900 900	8 9 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	890 891 892	888 888	888 4 7 88	883 883	880 881	877 878	875 876	873 874	871 872	869 870	867	9 6 6 6 8 6 6 6	863 863 863 863	861 061	859	857 859	8 55 5 55 55 5	8 8 5 8 5 3	851 852	849 850	848	8 4 3 6	845 845	843	841 842	840	838 838	836	8 8 8 2 2 4 3 4 7 4	833
ហហហហហហហហហ	ហហហហ	თთთი	ክመመ፡	თთთ	. თ თ (	<b>ກ</b> ወነ ወ	. თ თ	თთ	თთ	ο ο	თთ	v ov 0	თთი	n on o	n on o	, o, c	י טיי	n 00 (	<b>э</b> о	თ თ	თ თ	თი	n on	თ თ	, 0,	<b>σ</b> σ	<b>o</b> (	თთ	. 60 6	. თ თ	n 01
																							•		•						
33 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2																															
\$09517 \$11910 \$141606 \$145087 \$145087 \$145088 \$172808 \$172808 \$17280433 \$1789 \$183789 \$184210	A48301 140062 A30541 A40451	T29757 S20901	C89921 VFIHB1	T18995 AC0116 S23070	GNWVCH S77300	A34203 A43360 A64556	S28261 I49477	T28676 A33733	S13554 D64962	GNNYTM	T42717 GNNYTN	T30890	AB0821 A70524	150421 150421	S33124 T18397	JC5420	S00485	D72120	T08878	B98241 AB3045	T07258 A49282	E86318	G96736	T21986 T21993	C86822	JC5500 AI0452	F86194	\$45251 \$19580	S76781 AB2457	S28079 S46224	S78373
prolamin - sorghum T-cell receptor al homeotic protein S cysteine proteinas hypothetical prote gp82.2 protein - M dystrophin - rabbi hypothetical prote hypothetical prote	amate- imate fimbr	DNA-activated prot protein UNC-89 - C titin - rabbit (fr titin cardiac mus	hypothetical prote Fl protein - avian	etical postide	genome polyprotein hypothetical prote	DNA-binding protei inositol 1,4,5-tri	E E	rhoptry protein - spectrin alpha cha		genome polyprotein	DNA-binding protein genome polyprotein	calcium channel al	probable exported	e/123.15 procein -	~ >	oth muscle	11-1 protei	excinucleage ABC,	supervillin P205 -	hypothetical prote	cell division prot fusion protein la/	nypornecical proce protein F15H18.4 [	hypothetical prote	nypothetical prote hypothetical prote	hypothetical prote	phosphoinositide 3	hypothetical prote	SNF2alpha protein HBRM protein - hum	glutamate synthase two-component hybr	Ę N	e d
970 971 971 972 973 975 976 977	966 968 969	963 964 965	29 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	957 958 959	9 2 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	952 953	950 951	948 949	946 947	944 945	942	940	938	9 2 6 6	200	932	930	928	926	924	922 923	921	919	918	916	914 915	913	911	910	908	906
ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ	ហហហហ	ոտտտ	יטיטינ	ហហហ	ហហប	រា ហា ហា	ហហ	տ տ	ហេហ	ហហ	ហហប	חטונ	n un u	ហេប	ហេហ	ı GT L	nunu	<b>சு</b> பு	л UT (	лυ	ហហ	ហប	ហ	տ տ	ı vı ı	ກ ເກ	υic	лU	ហហ		ı
																							•	•							•
70 6 6 6 6 7 7 6 6 9 9 9 9 9 9 9 9 9 9 9 9	67 67	7 0 0 0 7 0 0 0	, , , ,	5 5 5 5 5 5	50 50 50 50 50 50	0 0 0 4 4 1	63 64	63 63	61 61	60 61	o o o	5 5 6	, U	5 5 5	, U, U	56	n 5 t	ייטת ניים	550	5 51	51 51	50	47	46	4.6	44	44.	42	39 41	39	38
H98019 A10738 AF1982 AF1982 F90926 B85775 C64925 AC1812	7H0117 A99352 D87032	117909 181804 181061	F97134 AB1911	C82542 B85601 D86043	E84494 F48279	T42109 S52615	NE3404 NMVZK8	AG2122 A83899	384029 <b>A97764</b>	4E2387 E83223	072735 AC1948	098151	E70581	D82459	183721 535169	T07222	AD1852	532360	C30606	C82586	KKPOT T07326	E90557	F01680	S23300 AI0173	T42016	D81921	B29137	F07077	E69677 F82459	284197 A43591	069677
2 5 5 5 5 6 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	pr pa co hy	nypo hypo nypo	hypo hypo hypo	hyp hyp unk	קעל קלע פולני	rep hyp	hyp K8	hyp hyp	hypo hypo	hyp dyd	אסעת האלני האלני	hyp	hyp hyp	nyp	hyp cyt	hypoth	hypi	SNA	7-0e	hypo	prot	дүүл Дүүл	sep	pno ord	PP1	hypo:	agd	hea	pnc	anti 43K	phos
hypothetical processors by pothetical protein [img. conserved hypothetical protein lage alpha 2 hypothetical prothypothetical prothypothetical prothypothetical prothypothetical prothypothetical protein agent 4.3 protein	otein-tyrosing rtial ORF from nserved hypoth pothetical pro		chet	othetica othetica	hypothetica hypothetica	replication- hypothetical			~ ~	hypothetica hypothetica	hypothetical hypothetical	othetica	hypothetica	othetica	i i i	othetica	othetica	SNAP receptor	ell rece	thetica	einase othetica	othetica	iapterin	othetica	-like Ser/T	chetic	leac		p- p		phosphatase

```
outer surface protein C precursor - Borrelia garinii C;Species: Borrelia garinii C;Date: 04-Sep-1997 #sequence_revision 04-Sep-1997 #text_change C;Accession: I40272 R;Fukunaga, M.; Hamase, A.
J. Clin. Microbiol. 33, 2415-2420, 1995 J. Outer surface protein C gene sequence analysis of Borre A;Reference number: I40269; MUID:96025162; PMID:7494039 A;Accession: I40272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RESULT 1
I40272
                                                                                                                                                                                                                                                                                                                     A; Cross-reference; Superfamily:
C;Genetics:
A;Gene: At2g22080
A;Map position: 2
                                                                                    C;Accession: G84608
R;Lin, X.; Kaul, S.; Rounsley, S.D.; Shea, T.P.; Benito, M.I.; Town, C.D.; Fujii, C.Y. M.; Koo, H.; Moffat, K.S.; Cronin, L.A.; Shen, M.; VanAken, S.E.; Umayam, L.; Tallon, euss, D.; Nierman, W.C.; White, O.; Eisen, J.A.; Salzberg, S.L.; Fraser, C.M.; Venter, Nature 402, 761-768, 1999
A;Title: Sequence and analysis of chromosome 2 of the plant Arabidopsis thaliana.
A;Reference number: A84420; MUID:20083487; PMID:10617197
                                                                                                                                                           En/Spm-like transposon protein [imported] - Arabidopsis thaliana C;Species: Arabidopsis thaliana (mouse-ear cress) C;Species: O2-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 02-Feb-2001
                                            A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-140 <ST
                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                           Ś
                                   A; Cross-references:
                                                                            A; Accession: G84608
                                                                                                                                                                                                                                                                                                                                                A; Residues: 1-210 < RES>
                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                  A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                          Cross-references: GB:D49378; NID:g1041105; PIDN:BAA08376.1; Superfamily: Lyme disease spirochete surface protein C
                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   979
9879
9810
9821
9884
9887
9887
9987
9994
9994
9994
9998
                                                                                                                                                                                                         N
                                                                                                                                                                                                                                                             38
                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                             LAKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
8; Conser
                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GB:AE002093;
                                                                                                                                                                                                                                                                                 3.7%; Score 8;
100.0%; Pred. No.
:ive 0; Mismatc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      E70985
183370
AH0700
AG1591
A35333
AE0014
S01739
G82179
Q4ECD8
B85608
D84810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AB2468
B82939
B75199
H72236
C90319
A82900
AH0392
                                   NID: g4587588; PIDN: AAD25816.1; GSPDB: GN00139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S60827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ALIGNMENTS
                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                           DB 2;
5. 2.6;
                                                                                                                                                                                                                                                                                                      Length 210;
                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            probable exported
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 hypothetical prote probable proteinas hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hypothetical prote glucose-6-phosphat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hypothetical prote
protein-tyrosine k
conserved hypothet
                                                                                                                                                                                                                                                                                                                                                                                                    Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            conserved hypothet orf in partial tra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             secretory protein hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     hypothetical hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           50S ribosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    hypothetical prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ydfC protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein precurso
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pothetical
                                                                                                                                                                                                                                                                                                                                     PID:g1041106
                                                                                                                                                                                                                                                                                                                                                                                                                                             26-May-2000
                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                   burgdorferi sensu
                                                                                                                                C.D.; Fujii, C.Y.;
ayam, L.; Tallon, L
                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   prote
prote
prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             prote
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           prot
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Esc
                                                                                                                                                                                                                                                                                  0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
    outer surface protein C - Lyme disease spirochete C;Species: Borrelia burgdorferi (Lyme disease spirochete) C;Date: 12-Feb-1998 #sequence_revision 20-Feb-1998 #text_change C;Accession: S70272
                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: ospC
                                                        RESULT
                                                                                       밁
                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 7
                                                                                                                                Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                       129
                                                                                        136
                                                        σ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        46
                                                                                                            39
```

```
outer surface protein C - Lyme disease spirochete (strain TXGW) C;Species: Borrelia burgdorferi (Lyme disease spirochete) C;Date: 02-Aug-1996 #sequence revision 02-Aug-1996 #text_change C;Accession: I40129; S54199 R;Theisen, M; Borre, M; Mathiesen, M.J; Mikkelsen, B.; Lebech J. Bacteriol. 177, 3036-3044, 1995
A;Title: Evolution of the Borrelia burgdorferi outer surface profits the correlia burgdorf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             outer surface protein C - Lyme disease spirochete C;Species: Borrelia burgdorferi (Lyme disease spirochete) C;Date: 12-Feb-1998 #sequence_revision 20-Feb-1998 #text_change 26-May-2000 C;Accession: $70262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number: I40104; MUID:95286481; PMID:776
A;Accession: I40129
A;Status: preliminary; translated from GB/EMBL/DDBJ
A;Molecule type: DNA
A;Residues: 1-177 <RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Livey, I.; Gibbs, C.P.; Schuster
Mol. Microbiol. 18, 257-269, 1995
A;Title: Evidence for lateral tran
                                                                                                                                                                                                                             A; Gene: ospC
C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-191 <LIV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: S70255; MUID:96296448; A; Accession: S70262
                                                                                                                                                                                                                                                                                                  A; Experimental C; Genetics:
                                                                                                                                                                                                                                                                                                                                                             A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ADDAEGK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDAEGK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AKEAILK 135
AKEAILK 142
                                                        AKEAILK 45
                                                                                                                Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lyme disease
                                                                                                                                                                                                                                         Lyme
                                                                                                                                                                                                                                                                                                                                    source:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.2%; So liarity 100.0%; I Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%; Score 7; DB:
llarity 100.0%; Pred. No. 20
Conservative 0; Mismatches
                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL: X84783; NID: g793825; PIDN: CAA59254.1; PID: g793826
                                                                                                                                                                                                                                                                                                                                    EMBL:L42879; NID:g858706; PIDN:AAB36988.1; PID:g1695206
ce: strain M57
                                                                                                                                                                                                                                         disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Schuster, R.;
                                                                                                                                                                              3.2%;
                                                                                                                                                                                                                                         spirochete surface protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       spirochete surface protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transfer and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 7; 1; Pred. No.
                                                                                                                      0;
                                                                                                                                                  Score 7;
; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Dorner,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB .
                                                                                                                               DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PMID:7768799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   recombination PMID:8709845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                              2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 140;
                                                                                                                                                                              Length 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                             a
                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lebech,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OgpC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein OspC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-May-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A.M.; Hansen,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7
```

dise

26-May-2000

```
C;Date: 18-Aug-2000 #sequence_revision 20-Aug-2000 #text_change 20-Aug-2000 C;Accession: C82619
R;anonymous, The Xylella fastidiosa Consortium of the Organization for Nucle Nature 406, 151-157, 2000
A;Title: The genome sequence of the plant pathogen Xylella fastidiosa.
A;Reference number: A82515; MUID:20365717; EMID:10910347
A;Note: for a complete list of authors see reference number A59328 below A;Accession: C82619
A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-197 <SIM>
A;Residues: 1-197 <SIM>
A;Cross-references: GB:AE004013; GB:AE003849; NID:g9107030; PIDN:AAF84736.1; GSPDB:GN001
A;Cross-references: GB:AE004013; GB:AE003849; NID:g9107030; PIDN:AAF84736.1; GSPDB:GN001
A;Cross-references: GB:AE004013; GB:AE003849; NID:g9107030; PIDN:AAF84736.1; GSPDB:GN001
A;Cross-references: GB:AE04013; GB:AE003849; NID:g9107030; PIDN:AAF84736.1; GSPDB:GN001
A;Cross-references: GB:AE004013; GB:AE003849; NID:g9107030; PIDN:AAF84736.1; GSPDB:GN001
A;Cross-references: GB:AE004013; GB:AE003849; NID:g9107030; PIDN:AAF84736.1; GSPDB:GN001
A;Cross-references: GB:AE004013; GB:AE003849; NID:g9107030; PIDN:AAF84736.1; GSPDB:GN001
A;Cross-references: GB:AE04013; GB:AE04013;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      outer surface protein C - Borrelia garinii (strain SL10) (fragment) C;Species: Borrelia garinii
C;Species: Borrelia garinii
C;Date: 08-Jul-1995 #sequence_revision 21-Jul-1995 #text_change 08-Dec-2000 C;Accession: I40127; S54196
R;Theisen, M.; Borre, M.; Mathiesen, M.J.; Mikkelsen, B.; Lebech, A.M.; Hansen, J. Bacteriol. 177, 3036-3044, 1995
A;Title: Evolution of the Borrelia burgdorferi outer surface protein OspC.
A;Reference number: I40104; MUID:95286481; PMID:7768799
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: EMBL:L42869; NID:g858736; PIDN:AAB37012.1; PID:g1695227 A;Experimental source: strain W C;Genetics: C;Superfamily: Lyme disease spirochete surface protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Reference number: S70255; MUID:96296448; A;Accession: S70272
A;Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R;Livey, I.; Gibbs, C.P.; Schuster, R.; Dorner, Mol. Microbiol. 18, 257-269, 1995
A;Title: Evidence for lateral transfer and recon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      HetI protein XF1934 [imported] - C;Species: Xylella fastidiosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A; Molecule type: DNA
A; Residues: 1-196 < THE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Reference number: I40104; MUID:95286481; A;Accession: I40127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Molecule type: DNA
A;Residues: 1-192 <LIV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Status: translated from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;Cross-references: EMBL:X84780; NID:g793821; PIDN:CAA59251.1; PID:g793822;Note: submitted to the EMBL Data Library, February 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Superfamily: Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AKEAILK 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%; Score 7; DB:
llarity 100.0%; Pred. No. 27
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%; Score 7; llarity 100.0%; Pred. No. Conservative 0; Mismatci
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      spirochete surface protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xylella fastidiosa (strain 9a5c)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                recombination PMID:8709845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2;
). 27;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        in OspC variation in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for Nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            disea
```

```
A;Authors: Ferreira, V.C.A.; Ferro, J.A.; Fraga, J.S.; Franca, S.C.; Franco, M.C.; Froh J.D.; Junqueira, M.L.; Kemper, B.E.; Kitajima, J.P.; Krieger, J.E.; Kuramae, B.E.; Laig chado, M.A.; Madeira, A.M.B.N.; Madeira, H.M.F.; Marino, C.L.; Marques, M.V.; Martins, A;Authors: Martins, E.M.F.; Matsukuma, A.Y.; Menck, C.F.M.; Miracca, E.C.; Miyaki, C.Y., F.G.; Nunes, L.R.; Oliveira, M.A.; de Oliveira, M.C.; de Oliveira, R.C.; Palmieri, D. Rodrigues, V.; Rosa, A.J. de M.; de Rosa Jr., V.E.; de Sa, R.G.; Santelli, R.V.; Sawasa A;Authors: da Silva, A.C.R.; da Silva, F.R.; da Silva, A.M.; Silva Jr., W.A.; da Silva, A;Tsuhako, M.H.; Vallada, H.; Van Sluys, M.A.; Verjovski-Almeida, S.; Vettore, A.L.;
                                                                                                                                                                                                                                                                                                                                       C;Species: Borrelia garinii
C;Date: 04-Sep_1997 #sequence_revision 07-Nov-1997 #text_change 08-Dec-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R;DelVecchio, V.G.; Kapatral, V.; Redkar, R.J.; Patra, G.; Muj; Mazur, M.; Goltsman, E.; Selkov, E.; Elzer, P.H.; Hagius, S Proc. Natl. Acad. Sci. U.S.A. 99, 443-448, 2002 A;Title: The genome sequence of the facultative intracellular A;Reference number: AD3252; PMID:11756688
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                        A; Cross-references: E
A; Note: submitted to
                                                                                                                          A; Molecule type: DNA
A; Residues: 1-203 < THE>
                                                                                                                                                                                                   A; Reference number: I40104; A; Accession: I40111
                                                                                                                                                                                                                                                 J. Bacteriol. 177, 3036-3044, 1995
A; Title: Evolution of the Borrelia burgdorferi outer surface
                                                                                                                                                                                                                                                                                                                                                                                                   outer surface protein C - Borrelia garinii (strain DK29) (fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Map position: I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
A; Residues: 1-202 < KUR>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Species: Brucella melitensis
C;Date: 01-Feb-2002 #sequence_revision 01-Feb-2002 #text_change 01-Feb-2002
C;Accession: AC3318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Gene: XF1934
                                                                                                                                                                           A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                R;Theisen, M.; Borre, M.; Mathiesen, M.J.; Mikkelsen, B.; Lebech, A.M.; Hansen,
                                                                                                                                                                                                                                                                                                                               C;Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                I40111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Experimental source: strain 16M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sodium-dependent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Contents: annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Reference number: A59328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Cross-references: GB:AE008917; PIDN:AAL51710.1; PID:g17982445;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   186 AAVILLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           130 AKEAILK 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BMEI 0529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAVILLT 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              phosphate transport protein [imported] - Brucella melitensis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            45
                                                                        EMBL:X84770; NID:g793795; PIDN:CAA59241.1; PID:g806330 the EMBL Data Library, February 1995
  disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.2%; Score 7; 1
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%; Score .
100.0%; Pred.
                                                                                                                                                                                                                          MUID:95286481;
spirochete surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R.J.; Patra, G.; Mujer, C.; Los, T.;
llzer, P.H.; Hagius, S.; O'Callaghan,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 197;
                                                                                                                                                                                                                                                    protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  pathogen Brucella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GSPDB: GN00190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (strain 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ivanova
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Letes
```

Query Match

7;

DB

2

Length 203;

```
C.Species: Borrelia garinii
C.Species: Borrelia garinii
C.Pate: 02-Aug-1996 #sequence_revision 02-Aug-1996 #text_change 08-Dec-2000
C.Paccession: I40105, S34174
R;Theisen, M.; Frederiksen, B.; Lebech, A.M.; Vuust, J.; Hansen, K.
J. Clin. Microbiol. 31, 2570-2576, 1993
A;Title: Polymorphism in ospC gene of Borrelia burgdorferi and immunoreacti.
A;Title: Polymorphism in ospC gene of Borrelia burgdorferi and immunoreacti.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;Note:
C;Geneti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Theisen, M.; Borre, M.; Mathiesen, M.J.; Mikkelsen, B.; Let J. Bacteriol. 177, 3036-3044, 1995
A;Title: Evolution of the Borrella burgdorferi outer surface A;Reference number: 140104; MUID:95286481; PMID:7768799
A;Accession: 140112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Gene: ospC
C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
C;Species: Borrelia ga
A;Variety: strain N34
C;Date: 15-Feb-1997 #8
C;Accession: S69926; S
                                                                                                                                                                     В
                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: EMBL:X73623; NID:g313271; PIDN:CAA52002.1; A;Note: submitted to the EMBL Data Library, February 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        outer surface protein C - Borrelia garinii (strain DK27) (fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Cross-references: EMBL:X84772; NID:g793796; PIDN:CAA59243.1; A;Note: submitted to the EMBL Data Library, February 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-204 < THE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          outer surface protein C -
                                                                         outer surface protein C precursor
                                                                                            S69926
                                                                                                              RESULT 12
                                                                                                                                                                                                                                                                                                                                      A;Gene: ospC
                                                                                                                                                                                                                                                                                                                                                                                                                           A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Accession: I40105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT 11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                        Residues: 1-205 <THE>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Species: Borrelia garinii
Date: 04-Sep-1997 #sequence_revision 07-Nov-1997
                                                                                                                                                                                                                                                                                                                   Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Accession: I40112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155 AKEAILK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       156
                                                                                                                                                                     157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       39
                                                                                                                                                                                                       39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AKEAILK 45
                                                                                                                                                                                                         AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AKEAILK 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 7; Conserv
                                                                                                                                                                                                                                           Similarity 7; Conser
 3b-1997 #sequence_revision
S69926; S72680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lyme disease spirochete surface protein
                                                                                                                                                                                                                                                                                                                   Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                       45
                                                     garinii
                                                                                                                                                                                                                                                                                                                   disease spirochete surface protein
                                                                                                                                                                                                                                     3.2%; 5c.
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%; Score 7; DB:
100.0%; Pred. No. 28
cive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Borrelia garinii (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                           Score 7; DB 2; Pred. No. 28; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. 28; Mismatches
                                                                         Borrelia
                    27-Feb-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
5. 28;
                                                                                                                                                                                                                                                              DB 2
). 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            28;
                                                                        garinii
                                                                                                                                                                                                                                                                               2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DK32)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      #text_change 08-Dec-2000
                  #text_change 26-May-2000
                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                               Length
                                                                         (strain N34)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B.; Lebech, A.M.; Hansen,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (fragment)
                                                                                                                                                                                                                                                                               205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PID:g806331
                                                                                                                                                                                                                                                                                                                                                                                       PID: g313272
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 immunoreactivity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           <u>.</u>
                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ospc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>~</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OgpC
                 C;Species: Borrelia garinii
A;Variety: strain WABSOU
C;Date: 15-Feb-1997 #sequence_revision 27-Feb-1997 #text_change 26-May-2000
C;Date: 15-Feb-1997 #sequence_revision 27-Feb-1997 #text_change 26-May-2000
C;Accession: S69925; S72678
C;Accession: S69925; S72678
R;Jauris-Heipke, S.; Liegl, G.; Preac-Mursic, V.; Roessler, D.; Schwab, E.;
J. Clin. Microbiol. 33, 1860-1866, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                          Ś
                                                                                                                             outer surface protein C
                                                                                                                                                  S69925
```

Molecular

analysis

œ,

genes

encoding

outer

surface

protein

a

(OspC)

of.

Borreli

D.; Schwab, E.; Soutschek,

precursor -

Borrelia garinii

(strain

WABSou)

```
R; Jauris-Heipke, S.; Liegl, G.; Preac-Mursic, J. Clin. Microbiol. 33, 1860-1866, 1995
A; Title: Molecular analysis of genes encoding A; Reference number: 140047; MUID:95395018; PMA; A; Accession: S69926
                                                                                                                                                                                                                                                                                                                                                                                     R;Jauris-Heipke, S.; Liegl, G.; Preac-Mursic, V.; Roessler, J. Clin. Microbiol. 3], 1860-1866, 1995
A;Title: Molecular analysis of genee encoding outer surface A;Reference number: I40047; MUID:95395018; PMID:7665660
                                                                                                                                                                                 C;Superfamily: Lyme disease spirochete surface protein F;1-18/Domain: signal sequence #status predicted <SIG> F;19-210/Product: outer surface protein C #status predi
                                                                                                                                                                                                                                                                                                   A; Molecule type: DNA
A; Residues: 1-210 <JAU>
A; Cross-references: EMB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C;Date: 06-Dec-1996 #sequence_revision 14-Feb-1997 #text_change 26-May-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-173, 'D'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              submitted to the EMBL Data Library, A; Reference number: S72679
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               R;Roessler,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
A; Residues: 1-209 <JAU>
                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: I40047;
A; Accession: S69920
                                                                                                                                                                                                                                                                                                                                                                                                                                                         C; Accession: S69920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        C;Species: Borrelia garinii
A;Variety: strain PHei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         outer surface protein C precursor -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Gene: ospC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Cross-references:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Experimental source:
RESULT
                                                                                                                                                                                                                                                                   A; Note: the nucleotide sequence
                                                                                                                                                                                                                                                                                       A;Experimental
                                                                                                                                                                                                                                                                                                                                                     A;Status: nucleic acid sequence not shown; translation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;Residues: 1-20;
;Cross-references: EMBL:X83556
;Cross-references: EMBL:X83556
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                    Matches
                                                                                                                                  Query Match
Best Local (
                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            39 AKEAILK 45
                                                                                 39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AKEAILK
                                                  AKEAILK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ö
                                                                                                                 Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S72680
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Lyme disease spirochete surface
                                                                                                                                                                                                                                                                                       source:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.2%; Score 7; llarity 100.0%; Pred. No. Conservative 0; Mismatcl
                                                                                                                    Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    D',175-209 <ROE>
EMBL:X83556; NID:g872023; PIDN:CAA58546.1;
                                                                                                                                                                                                                                                                                   EMBL:X83553; N
ce: strain PHei
                                                                                                                                                     3.2%;
                                                                                                                   ; Score 7; DB 2
%; Pred. No. 29;
0; Mismatches
                                                                                                                                                                                                                                                                       was
                                                                                                                                                                                                                                                                                                    NID:g872025; PIDN:CAA58543.1; PID:g872026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               January
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Borrelia
                                                                                                                                                                                                                                                                       submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PMID: 7665660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB
                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         garinii (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               V.; Roessler,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  outer surface
                                                                                                                                                                                                                                                                     ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                       the
                                                                                                                                                                                     predicted <MAT>
                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 209;
                                                                                                                                                    Length 210,
                                                                                                                                                                                                                                                                       EMBL
                                                                                                                                                                                                                                                                                                                                                         not shown
                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                         Data
                                                                                                                                                                                                                                                                                                                                                                                                      protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>ت</u>
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ū.
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein C
                                                                                                                                                                                                                                                                     Library,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PID:9872024
                                                                                                                                                                                                                                                                                                                                                                                                                                           Schwab,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Schwab,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                          (OspC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (OspC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    [H]
                                                                                                                                                                                                                                                                                                                                                                                                                                         E.; Soutschek,
                                                                                                                                                                                                                                                                         January
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Soutschek,
                                                                                                                                                                                                                                                                                                                                                                                                          ō,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                          Borrel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borreli
```

```
C;Accession: 140280

R;Fukunaga, M.; Hamase, A.
J. Clin. Microbiol. 33, 2415-2420, 1995

A;Title: Outer surface protein C gene sequence analysis of A;Reference number: 140269; MUID:96025162; PMID:7494039

A;Accession: 140280
                                                                                                                        A; Molecule type: DNA
A; Residues: 1-210 < R
                                                                                                                                                                                                                                                                    C;Species: Borrelia sp.
C;Date: 04-Sep-1997 #sequence_revision 04-Sep-1997
C;Accession: I40280
                                                                                                                                                                                                                                                                                                                  outer surface protein C precursor - Borrelia sp
C;Species: Borrelia an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           outer surface protein C precursor - Borrelia sp.
C;Species: Borrelia sp.
C;Date: 04-Sep-1997 #sequence_revision 04-Sep-1997 #text_change 26-May-2000
                                                                                                                                                          A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     C;Accession: I40274
R;Fukunaga, M.; Hamase, A.
J. Clin. Microbiol. 33, 2415-2420, 1995
J. Clin. Microbiol. 33, 2415-2420, 1995
A;Title: Outer surface protein C gene sequence analysis of Borrelia burgdorferi sensu A;Reference number: I40269; MUID:96025162; PMID:7494039
A;Accession: I40274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Accession: S72678
A;Molecule type: DNA
A;Residues: 1-86,'D',88-129,'D',131-210 <ROE>
A;Cross-references: EMBL:X81526; NID:g804964; PIDN:CAA57246.1; PID:g804965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Gene: ospC C_i Superfamily: Lyme disease spirochete surface protein C_i
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Cross-references: EMBL:X81526
A;Experimental source: strain WABSou
R;Roessler, D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Molecule type: DNA
A; Residues: 1-210 < JAU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Reference number: I40047; MUID:95395018; A;Accession: S69925
A;Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                                                                                          RESULT 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   submitted to the EMBL Data Library,
A;Reference number: S72674
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cross-references: GB:D49381; NID:g1041109; PIDN:BAA08379.1; Superfamily: Lyme disease spirochete surface protein C
                                                                        Cross-references: GB:D49504; NID:g707099; PIDN:BAA08464.1; PID:g769691; Superfamily: Lyme disease spirochete surface protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ;Residues: 1-210 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Status: preliminary; translated from GB/EMBL/DDBJ
                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
          Best Local
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155 AKEAILK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                  AKEAILK 161
                                                                                                                    1-210 <RES>
        Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
    3.2%; Score 7; DB:
larity 100.0%; Pred. No. 29
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%; Score 7;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    spirochete surface protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 7; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     September 1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                      DB 2;
5. 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 2;
5. 29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PMID: 7665660
                                        Length 210;
    0
                                                                                                                                                                                                                                                                                        #text_change 26-May-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
    Indels
                                                                                                                                                                                                              Borrelia burgdorferi sensu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PID:g1041110
    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
outer surface protein C precursor - Lyme disease sp C;Species: Borrella burgdorferi (Lyme disease spiro A;Variety: strain PKa C;Date: 15-Feb-1997 #sequence_revision 27-Feb-1997 C;Accession: S69927; S72669
                                                                                                  S69927
                                                                                                                  RESULT 18
                                                                                                                                                                          밁
                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A: Pagidues: 19-210 < LIV>
                                                                                                                                                                                                                                                                                                                                                                                      A; Experimental source: strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: nucleic acid sequence not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Molecule type: DNA
A;Residues: 1-210 <RES>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A;Molecule type: DNA
A;Residues: 1-210 <KLB>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Accession: S37726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Accession: G70218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Molecule type: DNA
A; Residues: 1-210 <JAU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession:
                                                                                                                                                                                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Status: preliminary
                                                                                                                                                                                                                                                                    Best Local Similarity
                                                                                                                                                                                                                                                                                        Query Match
                                                                                                                                                                                                                                                                                                                                                                    Genetics:
                                                                                                                                                                          155 AKEAILK 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155 AKEAILK 161
                                                                                                                                                                                                              39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         140269
                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    45
                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                          3.2%;
                                                                                                                                                                                                                                                                                                                                                                                      Ip2
                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  shown
```

```
A;Reference number: S70255; MUID:96296448; A;Accession: S70281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: EMBL:X69596; NID:g311391; PIDN:CAA49306.1; R;Livey, I.; Gibbs, C.P.; Schuster, R.; Dorner, F. Mol. Microbiol. 18, 257-269, 1995
A;Title: Evidence for lateral transfer and recombination in Osp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Cross-references: GB:D49497; NID:g707092; PIDN:BAA08457.1; PID:g769684
R;Jauris-Heipke, S.; Fuchs, R.; Motz, M.; Preac-Mursic, V.; Schwab, E.; Soutschek, E.;
Med. Microbiol. Immunol. 182, 37-50, 1993
A;Title: Genetic heterogenity of the genes coding for the outer surface protein C (OspC A;Title: Genetic heterogenity of the genes coding for the outer surface protein C (OspC A;Reference number: $37726; MUID:93268136; PMID:8098841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Cross-references: GB:AE000792; NID:g3253098; PIDN:AAC66329.1; PID:g2689901; A;Experimental source: strain B31
R;Fukunaga, M.; Hamase, A.
J. Clin. Microbiol. 33, 2415-2420, 1995
A;Title: Outer surface procein C gene sequence analysis of Borrelia burgdorfer A;Reference number: I40269; MUID:96025162; PMID:7494039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              outer surface protein C - Lyme disease spirochete
(;Species: Borrelia burgdorferi (Lyme disease spirochete)
C;Date: 13.Feb-1998 #sequence revision 13.Feb-1998 #text_change 21-Jul-2000
C;Accession: G70218; I40269; \overline{S37726}; S70281
C;Accession: G70218; I40269; \overline{S37726}; S70281
Son, D.; Peterson, J.; Kerlavage, A.R.; Quackenbush, J.; Salzberg, S.; Hanson, M.; Bowman, C.; Garland, S.; Fujii, C.; Cotton, M.D.; Horst, K.; Roberts, K.; Hatch,
Nature 390, 580-586, 1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Superfamily: Lyme disease spirochete surface protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 390, 580-586, 1997
A;Authors: Smith, H.O.; Venter, J.C.
A;Title: Genomic sequence of a Lyme disease spirochaete,
A;Reference number: A70100; MUID:98065943; PMID:9403685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A;Cross-references: EMBL:L42887; NID:g858715;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      acid sequence not shown; translation not shown
                                                                                                                                                                                                                                                                                                                                                                                                           Score 7; 1; Pred. No.
                                                                                             Lyme disease spirochete
                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                       DB
29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      recombination PMID:8709845
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIDN:AAB36995.1; PID:g1695212
                                                                spirochete)
                                                                                                                                                                                                                                                                                                                                                                                                                                        <u>ې</u>
#text_change
                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 210;
                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OgpC
                                                                                                 (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PID:g311392
                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      variation in Lyme
                                                                                                 PKa)
                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TIGR:BBB1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sensu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      dige
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Whit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     œ
```

26-May-2000

D.;

Schwab,

E.; Soutschek,

```
R; Jauris, S. submitted to the EMBL Data Library, a.Reference number: $72669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R; Jauris-Heipke, S.; Liegl, G.; Preac-Mursic, V.; Roessler, D.; Schwab J. Clin. Microbiol 33, 1860-1866, 1950-1866 Protein C A;Title: Molecular analysis of genes encoding outer surface protein C A;Reference number: I40047; MUID:95395018; PMID:7665660 A;Accession: S69927
                                                                                                                                  R;Stover, C.K.; Pham, X.Q.; Erwin, adman, S.; Yuan, Y.; Brody, L.L.; (.; Lory, S.; Olson, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R;Fukunaga, M.; Hamase, A.
J. Clin. Microbiol. 33, 2415-2420, 1995
A;Title: Outer surface protein C gene sequence analysis A;Reference number: I40269; MUID:96025162; PMID:7494039
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                outer surface protein C precursor - Borrelia garinii C;Species: Borrelia garinii C;Decies: Borrelia garinii C;Date: 04-Sep-1997 #text_change C;Date: 04-Sep-1997 #text_change C;Accession: I40275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Cross-references: EMBL:X69589 C;Genetics:
                                                                                                                                                                                   glutamine amidotransferase PA5142 [imported] - Pseudomonas aeruginosa (strain C;Species: Pseudomonas aeruginosa (C;Species: Pseudomonas aeruginosa (C;Date: 15-Sep-2000 #sequence_revision 15-Sep-2000 #text_change 31-Dec-2000 C;Accession: B83003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-212 < RES >
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Molecule type: DNA
A; Residues: 1-124, 'D', 126-139, 'E'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Residues: 1-210 <JAU>
A;Cross-references: EMBL:X69589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: nucleic acid sequence not A;Molecule type: DNA
 A;Residues: 1-213 < A;Cross-references:
                                                                 A; Reference number: A; Accession: B83003
                                                                                    A; Title: Complete genome sequence of Pseudomonas aeruginosa A; Reference number: A82950; MUID:20437337; PMID:10984043
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: preliminary; translated from GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A; Accession: I40275
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Accession: S72669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Experimental source: strain
                   A;Molecule type: DNA
A;Residues: 1-213 <S
                                                   A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ;Cross-references: GB:D49499; NID:g707094; PIDN:BAA08459.1; PID:g769686;Superfamily: Lyme disease spirochete surface protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Superfamily: Lyme disease spirochete surface protein
                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155 AKEAILK 161
                                                                                                                     y, S.; Olson, M.V.
406, 959-964, 2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
                                                                                                                                                                                                                                                                                                                                                          39
                                                                                                                                                                                                                                                                                                                                                            AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
               <STO>
 GB:AE004927;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             egl, G.; Preac-Mursic, V.; Roessler,
1860-1866, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                          3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PKa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
GB:AE004091; NID:g9951437; PIDN:AAG08527.1; GSPDB:GN001
                                                                                                                                                                                                                                                                                                                                                                                            0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 7
                                                                                                                                                                                                                                                                                                                                                                                                           Score 7;
Pred. No.
                                                                                                                                                   Coulter, S.N.; Folger, K.R.; Kas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           February 1994
                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     7;
. No.
                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 210,
                                                                                                                                                                                                                                                                                                                                                                                            ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                           Length 212;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borrelia
                                                                                                    PAO1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-May-2000
                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ç.
                                                                                                    an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 burgdorferi sensu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                  opportunistic patho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (0spC)
                                                                                                                                                     Hickey,
Larbig,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  of.
                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Borrelia
                                                                                                                                                     X X
. . . .
                                                                                                                                                       .; Bı
Lim,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               outer surface protein C pre
C;Species: Borrelia afzelii
A;Variety: strain PLud
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Experimental source: strai
C;Superfamily: Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Reference number: A; Accession: $69916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Molecule type: DNA
A; Residues: 1-214 < JAU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C; Accession: S69916
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S69916
                                 A;Gene: SMb21210
A;Genome: plasmic
C;Superfamily: or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Cross-references: EMBL:X83552;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R; Jauris-Heipke,
                                                                                      A; Contents: annotation C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                               C;Accession: D95951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Status: nucleic acid sequence not shown
                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                           A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                179 GLQLLQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Heipke, S.; Liegl, G.; Preac-Mursic, Microbiol. 33, 1860-1866, 1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLQLLQN
                                                   plasmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AKEAILK 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PA5142 amidotransferase hisH; trpG homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.2%; S ilarity 100.0%; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                185
                                   protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     strain PLud
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           precursor -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       spirochete surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 7; DB 2
; Pred. No. 29;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 7;
Pred. No.
     Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borrelia afzelii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB
29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ۷.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein
   2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0,
 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ..
```

```
A;Rosidues: 1-223 < KUR>
A;Residues: 1-223 < KUR>
A;Cross-references: GB:AL591985; PIDN:CAC49276.1; PID:g15140762;
A;Cross-references: strain 1021, megaplasmid pSymB
A;Experimental source: strain 1021, megaplasmid pSymB
R;Gallbert, F.; Finan, T.M.; Long, S.R.; Puhler, A.; Abola, P.; A
pela, D.; Chain, P.; Cowie, A.; Davis, R.W.; Dreano, S.; Federspi
L.; Hyman, R.W.; Jones, T.
L.; Hyman, R.W.; Jones, T.
Science 293, 668-672, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                J. Clin. Microbiol. 33, 1880-1880, 2000
A;Title: Molecular analysis of genes encoding outer surface
A:Reference number: I40047; MUID:95395018; PMID:7665660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Experimental source:
C; Genetics:
A; Gene: hisH1; PA5142
C; Superfamily: amidotra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C;Date: 06-Dec-1996 #sequence_revision 14-Feb-1997 #text_change 26-May-2000
                                                                                                                                                                                                                                                                                           Science 293, 668-672, 2001
A; Authors: Kahn, D.; Kahn, M.L.; Kalman, S.; Keating, D.H.; Kiss, E.; Komp, C.; hebault, P.; Vandenbol, M.; Vorholter, F.J.; Weidner, S.; Wells, D.H.; Wong, K.; A;Title: The composite genome of the legume symbiont Sinorhizobium meliloti.
A;Reference number: A96039; MUID:21368234; PMID:11474104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Finan, T.M.; Weidner, S.; Wong, K.; Buhrmester, J.; Chain, P.; Proc. Natl. Acad. Sci. U.S.A. 98, 989-994, 2001
A;Title: The complete sequence of the 1,683-kb pSymB megaplasmid A;Reference number: A95842; MUID:21396508; PMID:11481431
A;Accession: D95951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          probable two-component response regulator protein SMb21210 [imported] - Sin C;Species: Sinorhizobium meliloti C;Date: 24-Aug-2001 #text_change 30-Sep-200: C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        strain
response regulator homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NID: 9872017; PIDN: CAA58542.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Roessler, D.; Schwab, E.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 214,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Abola, P.; Ampe,
S.; Federspiel, 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PID: 9872018
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GSPDB:GN00167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Vorholter, F.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N.A.; Fisher, R.F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the N2-fixing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (OspC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sinorhizobium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Soutschek,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ō,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
```

Herna end

```
submitted to the EMBL Data Library, August 1999
A;Reference number: Z21588
A;Accession: T35767
A;Statue. -----
               conserved hypothetical protein PA3747 [imported] -
c;Species: Pseudomonas aeruginosa
C;Date: 15-Sep-2000 #sequence_revision 15-Sep-2000
C;Accession: G83178
                                                                                                                                                                                                                                                                                                                                    A;Description: Pyrococcus abyssi genome A;Reference number: A75001 A;Accession: C75077 A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Cross-references: EMBL:AL109732; PIDN:CAB52078.1; A;Experimental source: strain A3(2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 C;Accession: T35767
R;Saunders, D.C.; Harris, D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ş
                                                                  G83178
                                                                                RESULT
                                                                                                                         밁
                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C; Superfamily:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-252 <SAU>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Status: preliminary; translated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                         submitted to the EMBL Data Library, July 1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                              iron (111)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        hypothetical protein SC7H2.36c -
                                                                                                                                                                                                                                                      ;Gene: hemV-1; PAB0678
                                                                                                                                                                                                                                                                                                                                                                                                                              Species: Pyrococcus abyssi
Date: 20-Aug-1999 #sequence_revision 20-Aug-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;Date: 05-Nov-1999 #sequence_revision
                                                                                                                                                                                      Query Match
Best Local
                                                                                                                                                                                                                            Superfamily: unassigned ATP-binding cassette proteins; 23-215/Domain: ATP-binding cassette homology <ABC>
                                                                                                                                                                                                                                                                                                                                                                                                                     Accession: C75077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Species: Streptomyces coelicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local 
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    178
                                                                                                                                                 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity
                                                                                                                         22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               54 VDYSGSM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        18 VDYSGSM 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SCOEDB:SC7H2.36c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGLQLLQ 184
                                                                                                                                                 VLRGVNF 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DGLQLLQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                            abc transporter, ATP-binding
                                                                                                                                                                           Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                      Genoscope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Streptomyces coelicolor hypothetical
Pham,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           64
 X.Q.; Erwin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%;
                                                                                                                                                                          3.2%; Score 7; DB
100.0%; Pred. No. 35
Live 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Streptomyces coelicolor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>..</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No. 30; 
imatches
A.L.; Mizoguchi,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          05-Nov-1999 #text_change 08-Sep-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GB/EMBL/DDBJ
                                                                                                                                                                                                                                                                                                                                                                             sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (hemv-1)
                                                                                                                                                                                                                                                                                                                                                                             insights
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 252
                                                   Pseudomonas aeruginosa (strain
                                                                                                                                                                          0;
                                                                                                                                                                                                    Length 257;
                                                                                                                                                                                                                                                                                                                                                                                                                               #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                       #text_change
S.D.; Warrener, P.; Hickey, M.J.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     protein SC7H2.36c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSPDB:GN00070; SCOEDB:SC7H2.36c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                            Indels
                                                                                                                                                                                                                                          ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                            PAB0678
                                                                                                                                                                                                                                                                                                                                                                             into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Barrell, B.G.; Rajandream,
                          31-Dec-2000
                                                                                                                                                                                                                                                                                                                                                                             archaeal chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                  21-Jan-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                        ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pyrococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                          cassette homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                               PID:e15158:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           abyssi
                                                      PAO1)
                                                                                                                                                                                                                                                                                                                                                                              1138
                                                                                                                                                                                                                                                                                                                                                                                                                                                            (Bt
  В
            A;Gene:
C;Superf
                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                A; Experimental source: strain C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nature 406, 959-964, 2000 A;Title: Complete genome
                                                    A; Cross-references:
                                                                A; Molecule type: DNA
A; Residues: 1-276 <STO>
                                                                                                        A; Reference number: A84160; A; Accession: A84309
                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Residues: 1-267 <STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Status: preliminary A;Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; Accession: E83858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A;Gene: PA3747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Experimental source: C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Residues:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Molecule type:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        A;Reference number: A82950;
A;Accession: G83178
                                                                                            A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Accession: E83858
             Superfamily:
                                       Genetics:
                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                117 AAVILLT 123
                                                                                                                                                                                                                                                                                    27
                                                                                                                                                                                                                                                                                                                                                 57 GGLYTFA 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       74
                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                  BH1669
                                                                                                                                                                                                                                                                                                                         GGLYTFA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAVILLT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1-266 <STO>
                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity
             probable
                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                         72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80
             precorrin-3
                                                                                                                                                                                                                                                                                                                                                                                        3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>,,</u>
```

```
A84309

cobalamin biosynthesis [imported] - Halobacterium sp. NRC-1

C;Species: Halobacterium sp. NRC-1

C;Date: 02-Feb-2001 #sequence_revision 02-Feb-2001 #text_change 16-Feb-2001

C;Accession: A84309

Mahairaa G.G.; Berquist, B.; Pan, M.; Shukla, H.
                                                                                                         R;Ng, W.V.; Actimetry, U.C., A., Cruz, R.; Danson, M.J.; Hou ; Leithauser, B.; Keller, K.; Cruz, R.; Danson, M.J.; Hou Jung, K.H.; Alam, M.; Freitas, T. proc. Natl. Acad. Sci. U.S.A. 97, 12176-12181, 2000 A; Authors: Hou, S.; Daniels, C.J.; Dennis, P.P.; Omer, A. A; Title: Genome sequence of Halobacterium species NRC-1. A; Title: Genome sequence of Halobacterium species NRC-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      R;Takami, H.; Nakasone, K.; Takaki, Y.; Maeno, G.; Sasaki, R.; Masui, N.; Fuji, F.; Nucleic Acids Res. 28, 4317-4331, 2000
A;Title: Complete genome sequence of the alkaliphilic bacterium Bacillus halodurans A;Reference number: A83650; MUID:20512582; PMID:11058132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   hypothetical protein BH1669 [imported] - Bacillus halodurans (strain C-125) C;Species: Bacillus halodurans C;Date: 01-Dec-2000 #sequence_revision 01-Dec-2000 #text_change 15-Jun-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross-references: GB:AP001512; GB:BA000004; NID:g10174030; A;Experimental source: strain C-125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Cross-references: GB:AE004793; GB:AE004091; A;Experimental source: strain PAO1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           adman, S.; Yuan, Y.; Brody,
GB:AE004437; NID:g10581041; PIDN:AAG19837.1; GSPDB:GN00138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence of Pseudomonas aeruginosa
50; MUID:20437337; PMID:10984043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         L.L.; Coulter,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 b; Score 7; DB 2
b; Pred. No. 36;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S.N.; Folger, K.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NID:g9949904;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2
                                                                                                                                                         Omer, A.D.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 266;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ;
                                                                                                                                                                                                                               Hough,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PAO1,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PIDN: AAG07134.1;
                                                                                                                                                                                                                               D.W.; S
                                                                                                                                                             Ebhardt,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIDN:BAB05388.1; GSPDB:GN0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                             Shukla, H.D.; Lasky, Maddocks, D.G.; Jab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         opportunistic path
                                                                                                                                                             H.; Lowe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Larbig,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSPDB:GN00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ...
...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Hir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Lim
```

```
C;Species: Pseudomonas aeruginosa
C;Date: 15-Sep-2000 #sequence_revision 15-Sep-2000
C;Accession: A83329
R;Stover, C.K.; Pham, X.Q.; Erwin, A.L.; Mizoguchi, adman, S.; Yuan, Y.; Brody, L.L.; Coulter, S.N.; Fc.; Lory, S.; Olson, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Cross:references: GB:AE006469; PIDN:AAK65264.1; PID:gl4523716; GSPDB:GN00165
A;Experimental source: strain 1021, megaplasmid pSymA
R;Galibert, F; Finan, T.M.; Long, S.R.; Puhler, A.; Abola, P.; Ampe, F.; Barloy-Hubler, pela, D.; Chain, P.; Cowie, A.; Davis, R.W.; Dreano, S.; Federspiel, N.A.; Fisher, R.F.; L.; Hyman, R.W.; Jones, T.
Science 293, 668-672, 2001
A;Authors: Kahn, D.; Kahn, M.L.; Kalman, S.; Keating, D.H.; Kiss, E.; Komp, C.; Lelaure, hebault, P.; Vandenbol, M.; Vorholter, F.J.; Weidner, S.; Wells, D.H.; Wong, K.; Yeh, K. A;Fitle: The composite genome of the legume symbiont Sinorhizobium meliloti.
A;Reference number: A96039; MUID:21368234; PMID:11474104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R.Barnett, M.J.; Fisher, R.F.; Jones, T.; Komp, C.; Abola, A.P.; Barloy-Hubler, ; Kalman, S.; Keating, D.H.; Palm, C.; Peck, M.C.; Surzycki, R.; Wells, D.H.; Proc. Natl. Acad. Sci. U.S.A. 98, 9883-9888, 2001

A;Title: Nucleotide sequence and predicted functions of the entire Sinorhizobium A;Reference number: A95262; MUID:21396509; PMID:11481432

A;Accession: F95337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Contents: annotation C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       probable ABC transporter, ATP binding protein SMall20 [imported] - Sinorhizobium
C; Species: Sinorhizobium meliloti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                   A;Experimental source: strain C;Genetics: A;Gene: PA2536
                                                                                                                                        A;Status: preliminary
A;Molecule type: DNA
A;Residues: 1-311 <STO>
                                                                                                                                                                                                                                                     .; Lory, S.; Olson, M.V. Nature 406, 959-964, 2000
                                                                                                                                                                                                                                                                                                                                                             probable phosphatidate cytidylyltransferase PA2536
C;Species: Pseudomonas aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C; Superfamily: short-chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A;Gene: SMall20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
A; Residues: 1-304 < KUR>
                                                                                                                                                                                                A;Reference number: A82950;
A;Accession: A83329
                                                                                                                                                                                                                                  A; Title: Complete genome sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 7
Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;Date: 24-Aug-2001 #sequence_revision 24-Aug-2001 #text_change 17-May-2002
;Accession: F95337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Genome: plasmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Accession:
                                                                                                                           Cross-references: GB:AE004681;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EAILKIN 47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IELAKEA 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IELAKEA 42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EAILKIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 7; Conser
Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.2%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.2%; Silarity 100.0%; Conservative 0;
3.2%; Sollarity 100.0%; 1 Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          256
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATP-binding cassette
                                                                                                                                                                                                                   quence of Pseudomonas aeruginosa
MUID:20437337; PMID:10984043
Score 7; DB 2; Pred. No. 41; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 7; DB 2; Pred. No. 37; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                           GB:AE004091;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 7;
; Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mismatches
                                                                                                                                                                                                                                                                                      Mizoguchi, S.D.; Warrener, r, S.N.; Folger, K.R.; Kas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB
40;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 2;
                DB 2;
                                                                                                                         NID:g9948587;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  proteins;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 276;
                                                                                                                                                                                                                                                                                                                                                                                  [imported] -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                            #text_change
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 304;
0
                               Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATP-binding
                                                                                                                                                                                                                                  PA01,
                                                                                                                           PIDN: AAG05924.1; GSPDB:GN00:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entire Sinorhizobium melilo
                                                                                                                                                                                                                                                                                                                                                                                  Pseudomonas
                                                                                                                                                                                                                                                                                                                                              31-Dec-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
0,
                                                                                                                                                                                                                                    an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
Gaps
                                                                                                                                                                                                                                  opportunistic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cassette
                                                                                                                                                                                                                                                                                      Hickey,
Larbig,
                                                                                                                                                                                                                                                                                                                                                                                  aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Yeh,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .
.
                                                                                                                                                                                                                                                                                        × ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              melilot
                                                                                                                                                                                                                                  path
                                                                                                                                                                                                                                                                                        Lim,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    K C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                     ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ;Genetics:
                Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        63
```

```
Science 277, 1453-1462, 1997
A; Title: The complete genome sequence of Escherichia coli A;Reference number: A64720; MUID:97426617; PMID:9278503 A;Stafine: The complete MUID:97426617; PMID:9278503 A;Stafine: The control of the coli of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   probable ABC-type transport protein abc - Escherict C;Species: Escherichia coli C;Date: 12-Sep-1997 #sequence_revision 17-Sep-1997 C;Accession: G64744; I41113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gene 136, 231-236, 1993
A;Title: Cloning and organization of the abc and A;Reference number: I41113; MUID:94124004; PMID:7A;Accession: I41113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A;Molecule type: DNA
A;Residues: 1-343 <BLAT>
A;Cross-references: GB:AE000129; GB:U00096; NID:g1786395;
A;Experimental source: strain K-12, substrain MG1655
R;Allikmets, R.; Gerrard, B.; Court, D.; Dean, M.
Gene 136, 231-236, 1993
                                                                                                                                                                                            A;Molecule type: DNA
A;Residues: 1-343 <HAY>
A;Residues: 1-343 <HAY>
A;Cross-references: GB:BA000007; PIDN:BAB33624.1; PID:913359657;
A;Experimental source: strain O157:H7, substrain RIMD 0509952
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C;Species: Escherichia coli
C;Date: 18-Jul-2001 #sequence_revision
C;Accession: A90654
C;Accession: A90654
R;Hayashi, T; Makino, K; Ohnishi, M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Superfamily: probable ABC-type transport protein abc; C;Keywords: ATP; nucleotide binding; P-loop C;Keywords: ATP-binding cassette homology <ABC>F;21-217/Domain: ATP-binding cassette homology <ABC>F;38-45/Region: nucleotide-binding motif A (P-loop)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gasawara, N.; Yasunaga,
DNA Res. 8, 11-22, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Residues: 1-164,'V',166-199,'KWTL' <RES>
A;Cross-references: GB:L08626; NID:g145168; PIDN:AAC36869.1;
                                                                                                                                                                                                                                                                                                                                                                                                   A; Reference number: A99629; A; Accession: A90654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A; Title: Complete genome sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                    A;Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 7
                                                                 Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     173 GSVLVDG 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity nes 7; Conserv
                              Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QAAVILL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DAAVILL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              preliminary;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               component of a transporter ECs0201 [imported] -
Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Makino, K.; Ohnishi, M.; Kurokawa, I
Yasunaga, T.; Kuhara, S.; Shiba, T.;
                                                                                                                                  probable
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      larity 100.0%; F
Conservative 0;
   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       acid sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     translated from GB/EMBL/DDBJ
                                                                                                                                  ABC-type transport
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%; Score 7;
L00.0%; Pred. N
                                  3.2%; Score 7;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                     MUID:21156231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       not shown; translation
      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of enterohemorrhagic Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          red. No. 45
Mismatches
          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-Jul-2001 #text_change 03-Aug-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Escherichia coli (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PMID:7904973
                                                                                                                                     protein
                                                                                                                                                                                                                                                                                                                                                                                                                                         PMID:11258796
                                                                    DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       K.; Ishii,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        #text_change 01-Mar-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length
      <u>.</u>
                                                                 Length 343
                                                                                                                                     abc; ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hattori,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N.T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PIDN:AAC73310.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              shown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>۲</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PID:g145169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Burland,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shinagawa,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Yokoyama,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                       GSPDB: GN00154
      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             K-12)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            cassette
                                                                                                                                         cassette homology
      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           V.; Riley,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           O157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        coli:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PID:g1786398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            homology
          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            relatio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ger
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ဠ
```

```
phosphoglycerate kinase (E
C;Species: Synechocystis s
A;Variety: PCC 6803
C;Date: 25-Apr-1997 #seque:
C;Accession: S76392
C;Date: 25-Apr-1997 #sequence_revision 25-Apr-1997 #text_change 20-Jun-2000 C;Accession: S76392 R;Kaneko, T.; Sato, S.; Kotani, H.; Tanaka, A.; Asamizu, E.; Nakamura, Y.; lo, K.; Okumura, S.; Shimpo, S.; Takeuchi, C.; Wada, T.; Watanabe, A.; Yamad
                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local Similarity
Thes 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       R;Nierman, W.C.; Feldblyum, T.V.; Paulsen, I.T.; Nelson, K.E.; Eisen, J.; Heidelberg, B.; Laub, M.T.; DeBoy, R.T.; Dodson, R.J.; Durkin, A.S.; Gwinn, M.L.; Haft, D.H.; Koln, J.; Ermolaeva, White, S. Salzberg, S.L.; Shapiro, I.; Venter, J.C.; Fraser, C. Proc. Natl. Acad. Sci. U.S. A. 98, 4136-4141, 2001
A;Title: Complete Genome Sequence of Caulobacter crescentus.
A;Reference number: A87249; MUID:21173698; PMID:11259647
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            conserved hypothetical protein CC1169 [imported] - Caulobacter crescentus C_7Species: Caulobacter crescentus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Residues: 1-343 <STO>
A;Cross-references: GB:AE005174; NID:gl2512930; I
A;Experimental source: strain O157:H7, substrain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Title: Genome sequence of enterohemorrhagic Escherichia coli O157:H7A;Reference number: A85480; MUID:21074935; PMID:11206551A;Accession: A85505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATP-binding component of a transporter [imported] - Escherichia C;Species: Escherichia coli C;Species: Bscherichia coli C;Date: 16-Feb-2001 #sequence_revision 16-Feb-2001 #text_change C;Accession: A85505
C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Gene:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:AE005673; NID:g13422491; PIDN:AAK23153.1; GSPDB:GN00148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: DNA A; Residues: 1-355 < STO>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A;Reference number: A87249;
A;Accession: E87394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             A; Molecule type: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              A; Status: preliminary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;Date: 20-Apr-2001 #sequence_revision 20-Apr-2001 #text_change 20-Apr-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ;Superfamily: probable ABC-type transport
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                182 LLQNPAV 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173 GSVLVDG
                                                                                                                                                                                                                                                                                                                                                                                      99 LLONPAV 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GSVLVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GSVLVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       l Similarity
7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              179
                                                                                                                                                                         8 8p.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.2%;
                                                                                                                                                                                                             2.7.2.3)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 7; DB 2; Pred. No. 46; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 7; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                                                             Synechocystis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein abc; ATP-binding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIDN:AAG54501.1;
n EDL933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 355
   mizu, E.; Nakamura, Y.; Miyajima, N.;
T.; Watanabe, A.; Yamada, M.; Yasuda
                                                                                                                                                                                                         ġ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   J.D.; Rose, Potamousis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            14-Sep-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             coli (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GSPDB:GN00145;
                                                                                                                                                                                                                224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cassette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   D.J.;
K.; Aj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             O157:H7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                UWGP: Z02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Apodaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mayhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ફ
   Cross-references: GB:AE005174; NID:g12514343; PIDN:AAG55608.1; GSPDB:GN00145; UWGP:Z1;
```

```
R;Bevan, M.; Rose, M.; Hempel, submitted to the Protein Sequen A;Reference number: Z15380
                                                                                                       iller, L.; Grotbeck, E.J.
Nature 409, 529-533, 2001
                                                                                                                                      hypothetical protein Z1487 [imported] - Escherichia coli C;Species: Escherichia coli C;Species: Escherichia coli C;Date: 16-Feb-2001 #sequence_revision 16-Feb-2001 #text_C;Accession: D85643
R;Perna, N.T.; Plunkett III, G; Burland, V; Mau, B; Gl
                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Reywords: duplication; transmembrane protein
E;76-171/Domain: ADP,ATP carrier protein repeat homology <ACP1>
F;181-275/Domain: ADP,ATP carrier protein repeat homology <ACP2>
F;281-369/Domain: ADP,ATP carrier protein repeat homology <ACP3>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
A; Residues: 1-379 <BEV>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADP,ATP carrier protein F2009.60 - Arabidopsis thaliana (Species: Arabidopsis thaliana (mouse-ear cress) C;Date: 23-Apr-1999 #tex
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Start codon: GTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Cross-references: EMBL:D90915; A;Note: the nucleotide sequence v
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            A; Molecule type: DNA
A; Residues: 1-374 < KAN>
A; Molecule type: DNA
A; Residues: 1-407 < STO>
                             A; Status: preliminary
                                                    A; Reference number: A; Accession: D85643
                                                                                                                                                                                                                                  D85643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A; Note: F2009.60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A; Map position: 4
A; Introns: 157/3; 281/3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Status: nucleic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A;Reference number: S74322;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA Res. 3, 109-136, 1996
A;Title: Sequence analysis of the
                                                                                    A; Title: Genome sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A;Experimental source: cultivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ;Keywords: phosphotransferase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Superfamily: ADP, ATP carrier protein; ADP, ATP carrier protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cross-references: EMBL:AL021749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;Accession: T04608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Accession:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Superfamily: phosphoglycerate kinase
                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local (
                                                                                                                                                                                                                                                                                                         275 VLVDGLQ 281
                                                                                                                                                                                                                                                                                                                                         175 VLVDGLQ 181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RLTPVGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RLTPVGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T04608
                                                                                                                    Plunkett III, G.; Burland, V.; Mau, B.; Glasner, beck, E.J.; Davis, N.W.; Lim, A.; Dimalanta, E.;
                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  acid sequence not
                                                                     A85480;
                                                                   of enterohemorrhagic
30; MUID:21074935; PMI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.20;
100.0%; Fi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence
                                                                                                                                                                                                                                                                                                                                                                                              3.2%; Score 7;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MUID:97061201;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           s.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Columbia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ; GB:AB001339;
was submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 7; DB 2; Pred. No. 49; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       genome of the unicellular cyanobacterium Synechocysti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  shown; translation not
                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BAC
                                                                                                                                                                                                                                                                                                                                                                                      DB . 49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           K.D.; Hoheisel,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB
49;
                                                                     jic Escherichia
PMID:11206551
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PMID:8905231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            October
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NID:g1653604; PI
to the EMBL Data
                                                                                                                                                                          #text_change 14-Sep-2003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             #text_change
                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                             Length 379;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 374;
                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                              (strain 0157:H7,
                                                                                        coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PIDN:BAA18521.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mewes, H.W.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Library,
                                                                                                                       J.D.; Rose,
Potamousis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-May-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         repeat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                             0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           homology
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mayer,
                                                                                                                       D.J.; Mayhe
K.; Apodaca
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PID:g16536
1996
                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ×. F
                                                                                                                                                                                                                   ΕĐΙ
```

```
RESULT 39
F71896
                                                                                                                                                                                                                                                                                                                      R;Tomb, J.F.; White, O.; Kerlavage, A.R.; Clayton, R.A.; Sutton, G.G.; Fleischmann, R.D. Peterson, S.; Loftus, B.; Richardson, D.; Dodson, R.; Khalak, H.G.; Glodek, A.; McKenne son, J.D.; Kelley, J.M.; Cotton, M.D.; Weidman, J.M.; Fujii, C.; Bowman, C.; Watthey, L. Nature 388, 539-547, 1997
A;Authors: Wallin, E.; Hayes, W.S.; Borodovsky, M.; Karpk, P.D.; Smith, H.O.; Fraser, C. A;Fitle: The complete genome sequence of the gastric pathogen Helicobacter pylori. A;Reference number: A64520; MUID:97394467; PMID:9252185
A;Accession: E64617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 38
E64617
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A;Cross-references: GB:BA000007; PIDN:BAB34656.1; PID:g13360693; GSPDB:GN00154
A;Experimental source: strain O157:H7, substrain RIMD 0509952
C;Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  probable tail tip fiber protein [imported] - Escherichia coli (strain O157:H7, C;Species: Escherichia coli (Strain O157:H7, C;Date: 18-Jul-2001 #sequence_revision 18-Jul-2001 #text_change 18-Jul-2001 C;Accession: A99783 R;Hayashi, T.; Makino, K.; Ohnishi, M.; Kurokawa, K.; Ishii, K.; Yokoyama, K.; gasawara, N.; Yasunaga, T.; Kuhara, S.; Shiba, T.; Hattori, M.; Shinagawa, H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local Similarity
Thehes 7; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Experimental source: C; Genetics: A; Gene: Z1487
                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C;Species: Helicobacter pylori
C;Date: 09-Aug-1997 #sequence_revision 09-Aug-1997 #text_change 08-Oct-1999
C;Accession: E64617
R;Tomb, J.F.; White, O.; Kerlavage, A.R.; Clayton, R.A.; Sutton, G.G.; Flei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA Res. 8, 11-22, 2001
A;Title: Complete genome sequence of enterohemorrhagic Escherichia coli 0157:H7 and A;Reference number: A99629; MUID:21156231; PMID:11258796
A;Accession: A99783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                 밁
                                                                                                                                                                                                                                                                       A;Status: preliminary; nucleic acid sequence not shown; translation not shown A;Molecule type: DNA A;Residues: 1-429 <TOM>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      hypothetical protein HP0781 - Helicobacter pylori (strain 26695)
C;Species: Helicobacter pylori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: DNA
A; Residues: 1-422 <HAY>
 hypothetical
                                                                                                                                                                                                                                                     A;Cross-references: GB:AE000590; GB:AE000511; NID:g2313907; PIDN:AAD07834.1; PID:g231391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A;Status: preliminary
                                                                                                                                                                             Matches
                                                                                                                                                                                               Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153 KATIDQI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   161 KAIIDQI 167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         168 KATIDQI 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             161 KAIIDQI 167
                                                                                                 105
                                                                                                                                     ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ECs1233
                                                                                               EPKIELA 111
                                                                                                                                     EPKIELA 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11-22, 2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 7; Conserv
protein jhp0718 -
                                                                                                                                                                                             Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.2%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             strain O157:H7,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.2%;
                                                                                                                                                                                             3.2%;
Helicobacter pylori (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 7; DB 2; Pred. No. 54; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score 7;
Pred. No.
                                                                                                                                                                                             Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches
                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             substrain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB .
53;
                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EDL933
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 407
                                                                                                                                                                         0,
                                                                                                                                                                                                             Length 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                         <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps
                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Han,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      substrain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  geno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ?
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ົດ
                                                                                                                                                                                                                                                                         Search
Job tin
```

rch completed: April time : 73 secs

9

2003, 14:46:03

```
A; Experimental C; Genetical
                                                                                                                                                                                                                                                    R; Kaneko, T.; Nakamura, Y.
Nakazaki, N.; Shimpo, S.;
DNA Res. 8, 205-213, 2001
DNA Res. 8, 205-213, 2001
A; Title: Complete Genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
В
                          á
                                                                                                                                                                                                                                                                                                                      hypothetical protein alr5348 [imported] - NOSCOC BP. (BLICAL C.SPECIES: NOSTOC SP. C.SPECIES: NOSTOC SP. Strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7. A;NOTE: NOSTOC Sp. Strain PCC 7120 is a synonym of Anabaena sp. strain PCC 7. Date: 14-Dec_2001 #sequence_revision 14-Dec_2001 #text_change 30-Jun-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          A;Gene: jhp0718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C; Genetics:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A; Cross-references: GB: AE001503; A; Experimental source: strain J99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A; Variety: strain
                                                                                                                     A;Gene:
                                                                                                                                                 A;Cross-references: GB:BA000019; PIDN:BAB77047.1; A;Experimental source: strain PCC 7120
                                                                                                                                                                             A; Molecule type: DNA
A; Residues: 1-447 < KUR>
                                                                                                                                                                                                                         A;Reference number: AB1807;
A;Accession: AD2474
                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 A; Molecule type: DNA
                                                                                                                                                                                                           A;Status: preliminary
                                                                                                                                                                                                                                                                                                                 C; Accession: AD2474
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A;Residues: 1-429 <ARN>
                                                   Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Species: Helicobacter pylori
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                        105 EPKIELA
138 IELAKEA 144
                             36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  33 EPKIELA 39
                                                                                                                     alr5348
                             IELAKEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 7; Conserv
                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.2%; Sc
llarity 100.0%; P
Conservative 0;
                             42
                                                                                                                                                                                                                                                                                                                                                                                                                                                        111
                                                                                                                                                                                                                                                                                   , Y.; Wolk, C.P.; Kuritz, T.; Sasamoto,
S.; Sugimoto, M.; Takazawa, M.; Yamada,
                                                                                                                                                                                                                                         Sequence of the Filamentous Nitrogen-fixing 7; MUID:21595285; PMID:11759840
                                                                        100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; Score 7; DB 2
%; Pred. No. 55;
0; Mismatches
                                                                        Score 7; 1; Pred. No.
                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GB:AE001439; NID:g4155275;
                                                             Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 2;
                                                                           DB 2;
                                                                                                                                                                 PID:g17134487;
                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 429
                                                                                       Length 447
                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PIDN: AAD06301.1;
                                                                                                                                                                                                                                                                                  S.; Watanabe, A.; Iriguc, M.; Yasuda, M.; Tabata,
                                                                                                                                                                  GSPDB:GN00179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                           0
                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              human gastric pat
                                                                                                                                                                                                                                                         Cyanobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Vovis,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Smith,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PID:g41552
                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                    Iriguch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             D.R.
                                                                                                                                                                                                                                                          B
```

RESULT Q45647

38

PRELIMINARY;

210

₿

밁

155

AKEAILK

```
RESULT 39
ID 94958
AC Q4958
AC Q4958
AC Q4958
AC Q4958
OT 01-NC
DT 01-NC
DT 01-NC
DT 01-JI
DE Oute
OX NCBI
RN SEN
RN SEN
RC STRU
RX PUK
RT "OU
RT JU
RP SEN
RA FUK
RT JU
RT JU
RT SEN
RA FUK
RT JU
RT 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SORRETT A RECORDED TO THE SORREST OF THE SORREST OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local S
Matches 7
                                                          MEDLINE-97138972; PubMed=8985944;
Fükunaga M., Hamase A., Okada K., Nakao M.;
"Boxrelia tanukii sp. nov. and Borrelia turdae sp. nov. ixodid ticks in Japan: rapid species identification by targeted pCR analysis.";
Microbiol Immunol. 40:877-881(1996).
2 EMBL; D49504; BAA08464.1; -...
2 InterPro; IPR001800; Lipoprotein_6.
2 Ffam; PF01441; Lipoprotein_6; 1.
3 R ProDom; PD001149; Lipoprotein_6; 1.
5 R ProDom; PD001149; Lipoprotein_6; 1.
6 SEQUENCE 210 AA; 22149 MW; CCB7842F490CA5A8 CRC64;
   Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q45647
Q45647;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-JUN-2001 (TrEMBLrel. 17, Outer surface protein C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001800; Lipoprotein 6.

Pfam; PF01441; Lipoprotein 6; 1.

ProDom; PD001149; Lipoprotein 6; 1.

SEQUENCE 210 AA; 21956 MW; 2F136B68A2C3845D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Outer surface protein C gene sequence analysis burgdorferi sensu lato isolates from Japan."; J. Clin. Microbiol. 33:2415-2420(1995). EMBL; D4938; BAA08379:1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-NOV-1996 (TrEMBLrel. 01, 01-NOV-1996 (TrEMBLrel. 01, 01-JUN-2001 (TrEMBLrel. 17, Outer surface protein C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Outer surface protein C gene sequence analysis of Borrelia burgdorferi sensu lato isolates from Japan."; J. Clin. Microbiol. 33:2415-2420(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borrelia garinii.
Bacteria; Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Borrelia garinii.
Bacteria; Spiroch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q49582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pukunaga M., Hamase A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=96025162;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q49582;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Fukunaga M., Hamase A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=96025162; PubMed=7494039;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PubMed=7494039;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 7; I
   Score
                                                                  ; 1.
CCB7842F490CA5A8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence update) annotation updat
7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 210
Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ö
H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                   nov.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                   gene-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
```

```
Search co
                                                                                                                                                                                                                                                                                   A TO DESCRIPTION OF SECTION OF SE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT
Q57279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                               밁
                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                      A Jauris-Heipke S., Liegl G., Preac-Mursic V., Roessler I Soutschek E., Will G., Wilske B.; "Molecular analysis of genes encoding outer surface profit of Borrella burgdorferi sensu lato: relationship to osg evidence of lateral gene exchange of ospC."; J. Clin. Microbiol. 33:1860-1866(1995).

REMBL; X8353; CAA58243.1; ".

REMBL; X83526; CAA57246.1; ".

InterPro; IPR001800; Lipoprotein_6; 1.

ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                    Query Match
Best Local Similarity
Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity Matches 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q57279;
Q57279;
01-NOV-1996
01-NOV-1996
01-JUN-2001
                                                                                                                                                                                                                                                                                                         Signal.
SIGNAL
CHAIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAIN-PHEI;
MEDLINE=95395018; PubMed=7665660;
Preac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wilske B., Jauris-Heipke S., Lobentanzer R., Pradel I., Preac-Mursic V., Rossler D., Soutschek E., Johnson R.C.; "Phenotypic analysis of outer surface protein C (OspC) of Borrelia burgdorferi sensu lato by monoclonal antibodies: relationship to genospecies and OspA serotype."; J. Clin. Microbiol. 33:103-109(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OSPC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01.WOV-1996 (TrEMMBLrel. 01, Create 01.WOV-1996 (TrEMMBLrel 01, Last s 01-UN-2001 (TrEMMBLrel 17, Last a Outer surface protein C precursor.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Borrelia garinii.
Bacteria; Spiroch
                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=95213332;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155 AKEAILK 161
                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
completed: April
ne : 123 secs
                                                                                                                                        39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AKEAILK
                                                                                            AKEAILK
                                                                                                                                                                                                                                                                    1
19
210 -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                        45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      45
                                                                                               161
                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                        18
210
22021 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=7699024;
                     9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100.0%;
                                                                                                                                                                                                            100.0%;
                                                                                                                                                                                                                                  3.24;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01,
                        2003,
                                                                                                                                                                                                                                                                                   Œ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Spirochaetaceae;
                                                                                                                                                                                      Score 7; DB 2; pred. No. 60; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                             14:45:21
                                                                                                                                                                                                                                                                                 POTENTIAL.
82030EB131EC5A0A CRC64;
                                                                                                                                                                                                                                                                                                                               POTENTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Roessler D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                  Length 210;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein C (OspospA genotype
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Schwab
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (OspC)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                           0
```

```
RESULT 35
Q45179
  SOFTING THE PROPERTY OF THE PR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SQ PTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                             Signal.
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q45179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Signal;
SIGNAL
                                                                                                                                                                                    Jauris-Heipke S., Liegl G., Preac-Mursic V., Roessler D., Schwab E., Soutschek E., Will G., Wilske B., "Molecular analysis of genes encoding outer surface protein C (OspC) of Borrelia burgdorferi sensu lato: relationship to ospA genotype an evidence of lateral gene exchange of ospC.";

J. Clin. Microbiol. 33:1860-1866(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=95213332; PubMed=7699024; Wilske B., Jauris-Heipke S., Lobentanzer R., Pradel I., Preac-Mursic V., Rossler D., Soutschek E., Johnson R.C.; Preenotypic analysis of outer surface protein C (OspC) of Borr burgdorferi sensu lato by monoclonal antibodies: relationship genospecies and OspA serotype."; J. Clin. Microbiol. 33:103-109(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-UN-2001 (TrEMBLrel. 17, Last annotation update)
Outer surface protein C precursor:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Theisen M., Frederiksen B., Lebech A.M., Vuust J., "Polymorphism in ospC gene of Borrelia burgdorferi immunoreactivity of OspC protein: implications for use of OspC protein as a diagnostic antigen.", J. Clin. Microbiol. 31:2570-2576(1993).
                                                                                                                                                                                                                                                                                                                                   MEDLINE=95395018; PubMed=7665660;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001800; Lipoprotein 6. Pfam; PF01441; Lipoprotein 6; 1. ProDom; PD001149; Lipoprotein 6; 1.
  SEQUENCE
                                                                                                                   InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q45179;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; X73623; CAA52002.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=94075528; PubMed=8253951;
                                                                                            ProDom;
                                                                                                                                                                   EMBL; X83556; CAA58546.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=N34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Borrelia garinii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NON TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ANCHOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBCELLULAR LOCATION: ATTACHED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AKEAILK 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lipoprotein;
                                                                                            PD001149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   205
205 #
  209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
AΑ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ą.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 205
205
21426 MW;
                                                                                       oprotein_6; 1.
Lipoprotein_6; 1.
                                               18
  22035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Outer membrane
₹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Spirochaetaceae; Borrelia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Spirochaetaceae; Borrelia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 7; I
Pred. No.
                      POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   POTENTIAL.
OUTER SURFACE PROTEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3246712B96D2A510 CRC64;
9DDB0164F9E4FC59 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               THE OUTER MEMBRANE BY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hansen
and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   taxonomy and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   χ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               A LIPIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ٥,
```

```
RESULT 37
Q9KIM6
                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                   뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT
                  Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local
                                                       "Antigenic variation and intragenic re
Borrelia burgdorferi.";
Submitted (FEB-2000) to the EMBL/GenBa
EMBL; AF230183; AAF75624.1; -.
InterPro; IPR001800; Lipoprotein 6.
Pfam; PF01441; Lipoprotein 6; 1.
ProDom; PD001149; Lipoprotein 6; 1.
SEQUENCE 210 AA; 22033 MW; A7760EE
                                                                                                                                                                                                                           01-OCT-2000
01-OCT-2000
01-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9K1K3;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-OCT-2000 (TrEMBLrel.
01-JUN-2002 (TrEMBLrel.
Outer surface protein C.
                                                                                                                                                                                      Borrelia garinii.
Bacteria; Spiroch
                                                                                                                                                                                                                 01-JUN-2002 (TrEMBLrel.
Outer surface protein C.
                                                                                                                                                                                                                                                         Q9KIM6;
                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
SEQUENCE 209 AA; 21977 MW; C98F0164F9E4FAF5
                                                                                                                                                                                                                                                                                                                                                                                                                       Borrella burgdorferi.";
Submitted (FEB-2000) to the EMBL/Ge.
EMBL; AF231450; AAF76855.1; -.
InterPro; IF8001800; Lipoprotein_6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borrelia garinii.
Bacteria; Spiroch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OSPC
                                                                                                                                                 STRAIN=DK29;
                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                          NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                   Q9KIM6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=K48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=29519;
                                                                                                                                     Dykhuizen D.E., Guttman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Dykhuizen D.E., Guttman D.S.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         154
                                                                                                                                                                                                                                                                                                                   154 AKEAILK 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Antigenic variation and intragenic
                                                                                                                                                                                                                                                                                                                                     39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                 Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ÿ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39 AKEAILK 45
 39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AKEAILK
                 Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                        Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Spirochaetales;
                                                                                                                                                                                     Spirochaetales;
                                                                                                                                                                                                                                  (TrEMBLrel.
(TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3.2%; Score 7; DB 2
larity 100.0%; Pred. No. 60;
Conservative 0; Mismatches
                   Conservative
                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                                                                                                                                                                                   PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         160
               3.2%; 500
100.0%; Pro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15,
15,
21,
                                                                                                                                      U
                                                                                                                                                                                                                          15,
15,
21,
                                                                                                                                                                                     Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                  Score 7; I
; Pred. No.
                  Score 7; DB 2; Pred. No. 60; 0; Mismatches
                                                                                                         EMBL/GenBank/DDBJ
                                                                                                                                                                                                                           Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Created)
                                                                                                                                                                                                                                                Created)
                                                                                                                            Luft B.J.; agenic recombination
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Luft B.J.;
                                                          A7760EB09AF4ECB8
                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 recombination in the
                                                                                                                                                                                                                                                                   210 AA
                       DB .
                                                                                                                                                                                                                                                                                                                                                                  DB 2;
                                      2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2
                    0
                                     Length 210;
                                                                                                          databases
                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                           Length 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 209;
                                                                                                                                                                                                                                                                                                                                                                                               CRC64;
                                                          CRC64;
                                                                                                                             'n
                    Indels
                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                             the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OgpC
                                                                                                                            OgpC
                    0
                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                             얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  얁
                    0
                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
```

```
Q4498
ID Q4498
AC Q4498
AC Q4498
AC Q4498
AC Q498
DT 01-NC
DT 01-JU
DE OUTEC.
OS BOXTEC
OS BOXTEC
OS BOXTEC
OS BOXTEC
OX HOLL
RN [1]
RC STRAI
RX MEDLI
RA Hanse
RA Hanse
RA Hanse
RT STRAI
RX MEDLI
RA Theis
RA HANSE
RT J. Ba
DR EMBL;
DR Pfam;
DR Pfam;
DR Pfam;
PT NON T
                                                                                                        RESULT 32
Q44984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
 9277786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NO SEQUENCE FROM N.A.

PRESCUENCE FROM N.A.

PROSTRAIN=16M / ATCC 23456 / BIOTYPE 1;

CSTRAIN=16M / ATCC 23456 / BIOTYPE 1;

CMEDLINE=20020109; PubMed=11756688;

LO DelVecchio V.G., Kapatral V., Redkar R.J., Patra G., Mujer C., Los T.

AD DelVecchio V.G., Kapatral V., Redkar R.J., Lykidis A., Reznik G.,

Los T. Larsen N., D'Souza M., Bernal A., Mazur M., Goltsman E.

Selkov E., Elzer P.H., Hagius S., O'Callaghan D., Letesson J.-J.,

AS Selkov E., Elzer P.H., Hagius S., O'Callaghan D., Letesson J.-J.,

AS Selkov E., Kyrpides N., Overbeek R.;

Haselkorn R., Kyrpides N., Overbeek R.;

The genome sequence of the facultative intracellular pathogen

The genome sequence of the facultative intracellular pathogen

The proc. Natl. Acad. Sci. U.S.A. 99:443-448(2002).

EMBL; AB009495; AAL51710.1; -.

REMBL; AB009495; AAL51710.1; -.

REMBL; AB009495; AAL51710.1; -.

REMBL; AB009495; Na_Pi_cotrans.

FinerPro; IPR003841; Na_Pi_cotrans.

FinerPro; IPR003841; Na_Pi_cotrans.

FinerPro; IPR003841; Na_Pi_cotrans.

PROCOMPLEE 202 AA; 21749 MW; AE86F9F29AF6B662 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                              Query Match
Best Local S
Matches 7
 Q44984;
Q1-NOV-1996 (TrEMBLrel. 01
Q1-NOV-1996 (TrEMBLrel. 01
Q1-JUN-2001 (TrEMBLrel. 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               117 AAVILLT 123
||||||
186 AAVILLT 192
                                                                                                                                                                                                                                                                                           NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                 "Evolution of the Borrelia burgdorferi J. Bacteriol. 177:3036-3044(1995). EMBL; X84770; CAA59241.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Borrelia garinii.
Bacteria; Spirochaetales;
NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-NOV-1996 (TrEMBLrel. 17, Last annotation update)
01-Guter surface protein C (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q44983
                                                                                          Q44984
                                                                                                                                                                                                                                                                                                                                     Pfam; PF01441; Lipoprotein 6; 1.
ProDom; PD001149; Lipoprotein 6; 1.
Outer surface OSPC.
                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001800; Lipoprotein_6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Theisen
                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=95286481;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=DK29;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q44983;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                    155 AKEAILK 161
                                                                                                                                                                                      39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                              M., Borre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity 7; Conser
                                                                                                                                                                                                                                Similarity 7; Conserv
                                                                                                                                                                                                                                                                                          203
203 AA;
                                                                                                                                                                                                                            3.2%; Score 7; DB:
llarity 100.0%; Pred. No. 58
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.2%; So
larity 100.0%; I
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                          PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                              PubMed=7768799;
M., Mathiesen M.J.,
                                                                                                                                                                                                                                                                                          203
21226 MW;
            01, Created)
01, Last sequence update)
17, Last annotation update)
(Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 7;
Pred. No
                                                                                                                                                                                                                                                                                          25E1F4180847F7D4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            red. No. 58,
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      203
                                                                                          204
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mikkelsen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 16;
5. 58;
                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                   outer surface protein OspC.";
                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Borrelia
                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                             Length 203;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 B.,
                                                                                                                                                                                                                                                                                             CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lebech A.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goltsman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ,
,
                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                0
```

```
RESULT 34
Q08141
ID Q0814
AC Q0814
DT 01-NC
DT 01-NC
DT 01-U
DT 01-U
DT 01-U
DT 01-U
DT 05PC
OS BOTTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 33
050622
                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OCCOOR OC
                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             O50622
O50622;
O1-JUN-1998
O1-JUN-1998
O1-DEC-2001
                                                       Q08141; PRELIMINARY; PRT; 205 AA.
Q08141; PREMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                               ProDom;
NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Masuzawa T., Sawaki K., Yoshii T.;
"B. afzelii OspC (PLud).";
"B. treelii OspC (PLud).";
Submitted (DEC-1997) to the EMBL/GenBank/DDBJ databases.
EMBL; AB009898; BAA24128.1;
InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OSPC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Evolution of the Borrelia burgdorferi
J. Bacteriol. 177:3036-3044(1995).
EMBL; X84772; CAA59243.1; -
Borrelia burgdorferi (Lyme disease spirochete).
                   Outer surface protein C OSPC.
                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=PLUD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Spirochaetales;
NCBI_TaxID=29518;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=95286481;
Theisen M., Borre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacteria; Spirochaetales;
NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Borrelia garinii.
Bacteria; Spiroch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borrelia afzelii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Outer surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156
                                                                                                                                                                                                                                                       153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   39 AKEAILK
                                                                                                                                                                                                                                                                                               39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AKEAILK
                                                                                                                                                                                                                                                       AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7; Conserv
                                                                                                                                                                                                                                                                                                                                       Similarity 7; Conserva
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            204
204 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                         205
205 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel. () (TrEMBLrel. () (TrEMBLrel. ) (CremBLrel. )
                                                                                                                                                                                                                                                                                                                                       3.2%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                          159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PubMed=7768799;
M., Mathiesen M.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     204
                                                                                                                                                                                                                                                                                                                                                                                                                                                   205
                                                                                                                                                                                                                                                                                                                                                                                                                             21301 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21369 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3.2%; Score 7; DB 2
100.0%; Pred. No. 59;
tive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         06, Created)
06, Last sequence update)
19, Last annotation updat
(Fragment).
                                       precursor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                                       ; Score 7; DB 2
%; Pred. No. 59;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                             09741ABB4048BB1C CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1405DDC0A8B3D762 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mikkelsen
                                                                                                                                                                                                                                                                                                                                                             DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    outer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    surface protein OspC.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 204;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ..
                                                                                                                                                                                                                                                                                                                                                                                   Length 205;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₿.,
                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lebech A.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                              0
```

```
RESULT 28
Q93Q98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 27
Q9RQR9
RRN OCC OCT DIT
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SO REPERT
                                                       Q93Q98
Q93Q98;
C93Q98;
C93Q98;
C1-DEC-2001 (TrEMBLrel. 19, Created)
C1-DEC-2001 (TrEMBLrel. 19, Last sequ
O1-MAR-2002 (TrEMBLrel. 20, Last annotation of the surface protein C (Fragment).
                                                                                                                                                                                                                                                 Query Match
Best Local
                                                                                                                                                                                                                                       Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                             Hoffmeister E.K., Glass G.E., Childs J.
"Population dynamics of a naturally oc
Borrelia burgdorferi clones.",
Infect. Immun. 67:5709-5716(1999).
EMBL, AP074464; AND23911.1;
InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nature 406:151-159(2000).

EWBL; ABO04013; AAF84736.1; -.

InterPro; IPR002582; ACPS.

Pfam; PF01648; ACPS; 1.

Complete proteome.

SEQUENCE 197 AA; 22414 MW; 4
                                                                                                                                                                                                                                                                                Plasmid.
NON TER
SEQUENCE
                             Borrelia burgdorferi
Bacteria; Spirochaeta
NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            01.MAY-2000 (TrEMBLrel. 13, Created)
01.MAY-2000 (TrEMBLrel. 13, Last sequence update)
01.DEC-2001 (TrEMBLrel. 19, Last annotation updat
Outer surface protein C (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Plasmid cp26.
Bacteria; Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9RQR9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 de Souza A.P., Terenzi M.F., Truffi D., Tsai S.M., Tsuhako Vallada H., Van Sluys M.A., Verjovski-Almeida S., Vettore Zago M.A., Zatz M., Meidanis J., Setubal J.C.; "The genome sequence of the plant pathogen Xylella fastidi
                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Borrelia burgdorferi
          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=20002545;
                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=139;
                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            130
                                                                                                                                                                                                                 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39
                                                                                                                                                                                                              AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AKEAILK 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AKEAILK 45
                                                                                                                                                                                            AKEAILK
                                                                                                                                                                                                                                      Similarity
7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                proteome.
197 AA;
                                           Spirochaetales;
                                                                                                                                                                                                                                                                                  200
200 A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                      larity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                            161
                                                                                                                                                                                                                                                                                   AA;
                                                                                                                                                                                                                                                                                                                                                                        PubMed=10531219;
G.E., Childs J.E., Pers.
                                                                                                                                                                                                                                                                                  200
21307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Lyme disease spirochete).
                                                                                                                                                                                                                                    3.2%; Score 7; DB ;
100.0%; Pred. No. 57,
ive 0; Mismatches
                                                                                                                                                                                                                                                                                MW;
                                          s disease spirochete).
Spirochaetaceae; Borr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Spirochaetaceae; Borrelia.
                                                                                      Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0,
                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 7; DB 1; Pred. No. 57; 0; Mismatches
                                                                                                                                                                                                                                                                                A22F158758BEBB6B CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4936BAFD31902C17 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   pathogen Xylella fastidiosa.";
                                                                                                                                     202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     200
                                                                                                                                                                                                                                                 DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 16;
b. 57;
                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                                                                                                                                                                                                               Persing D.H.;
                                           Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                   heterogeneous mixture
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٥,
                                                                                                                                                                                                                                                           Length 200;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length 197;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tsuhako
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  м.
н.
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                    of.
                                                                                                                                                                                                                                     0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
```

```
OX NG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q932W2
ID932W2
ID932W2
ID932W2
ID9701
ID7001
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RA DR RT PT PT SQ
                                                                                                                                                                                                                                                RESULT 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Best Loc
Matches
                                                                                                                                                                                                                                                                                                                                                                                         Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
                                                                                                                 Q8YIB5;
Q8YIB5;
01-MAR-2002 (TrEMBLrel. 2:
01-MAR-2002 (TrEMBLrel. 2:
01-JUN-2002 (TrEMBLrel. 2:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q932W2;
01-DEC-2001
01-DEC-2001
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProDom;
NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STRAIN=B31, BBDM, BBMS, AND BBDF;
Lin T., Oliver J.H., Gao L.;
"Outer surface protein C gene sequence analysis of Borrelia burgdorferi sensu lato isolated in the Southern United State Submitted (JUN-2000) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OSPC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON_TER
                                   Brucella melitensis.
Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AF278580; AAK69453.1; -. EMBL; AF278581; AAK69454.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (JUN-2000) to the EMBL/GenBank/DDBJ databases. EMBL; AF278582; AAK69455.1; -.
InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lin T., Oliver J.H., Gao L.;
"Outer surface protein C gene sequence analysis of Borrelia burgdorferi sensu lato isolated in the Southern United Stat
                     Brucellaceae;
                                                                                BMEI0529.
                                                                                                Sodium-dependent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pfam; PF01441; Lipoprotein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; AF278578; AAK69451.1; EMBL; AF278579; AAK69452.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Borrelia burgdorferi (Lyme disease spirochete)
Bacteria; Spirochaetales; Spirochaetaceae; Bor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Outer surface
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q932W2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQÜENCE
  NCBI_TaxID=29459;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                           149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nterPro; IPR001800; Lipoprotein_6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            149 AKEAILK
                                                                                                                                                                                                                                                                                                                                                   39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                           AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                       . Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          202
202 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (TrEMBLrel. 1 (TrEMBLrel. 2 (TrEMBLrel. 2 (TrEMBLrel. 2 )
                                                                                                                                                                                                                                                                                                                                                                                       3.2%; Solarity 100.0%; I Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                           155
                                                                                                                                                                                                                                                                                                                                                   45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                     Brucella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A
,
                                                                                                MMBLrel. 20, (MMBLrel. 20, )
MMBLrel. 21, )
phosphate t:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202
; 21426 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       21399 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.2%; Score 7; 1
100.0%; Pred. No.

    Created)
    Last sequence update)
    Last annotation update)
    (Fragment)

                                     alpha
                                                                                                Last sequence update)
Last annotation update)
transport protein.
                                                                                                                                                                                                                                                                                                                                                                                                         Score 7; pred. No
                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          D196E57979D698E6 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CBBFE57979D698E6 CRC64;
                                        subdivision; Rhizobiaceae
                                                                                                                                                                                                                                                                                                                                                                                           Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                            No.
                                                                                                                                                                                                        202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         202
                                                                                                                                                                                                                                                                                                                                                                                                            DB 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 2;
                                                                                                                                                                                                        A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                               2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Borrelia.
                                                                                                                                                                                                                                                                                                                                                                                           ..
                                                                                                                                                                                                                                                                                                                                                                                                                            Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 202;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                States.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      States.";
                                     group;
                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ;
                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
RESULT 25
Q44997
ID Q4499
AC Q4499
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SOUTH THE PROPERTY OF THE PROP
                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                        Query Match
Best Local &
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRAIN=PAR02;
STRAIN=PAR02;
STRAIN=PAR02;
Aga Gylfe B., Olsen B., Strasevicius D., Marti Ra
Aga Gylfe B., Ostberg Y., Baranton G., Bergstrom S.;
Noppa L., Ostberg Y., Baranton G., Bergstrom S.;
"Lyme disease Borrelia isolated from puffins (Fr.
"Lyme disease Borrelia isolated on the Faeroe I
"Chempto India" (Chempto India) (Chempto India)
"Chempto India" (Chempto India)
"Chempto I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAY-2000
01-MAY-2000
01-JUN-2001
Q44997
Q44997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Asa Gylfe B., Olsen B., Strasevicius D., Marti Ras N., Weihe P., Noppa L., Ostberg Y., Baranton G., Bergstrom S.;
"Lyme disease Borrelia isolated from puffins (Fratercula arctica) the seabird ticks (Ixodes uriae) on the Faeroe Islands.";
Submitted (JUL-1998) to the EMBL/GenBank/DDBJ databases.
EMBL; AF080263; AAD44501.1;
InterPro; IPR0011800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia garinii.
Bacteria; Spirochaetales;
NCBI TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-MAY-2000 (TrEMBLrel.
01-JUN-2001 (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "Lyme disease Borrelia isolated from puffins the seabird ticks (Ixodes uriae) on the Faero Submitted (JUL-1998) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Borrelia garinii.
Bacteria; Spirochaetales;
NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=FAR03;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q9S516;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q9S516
                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  145
                                                                                                                                                                                               146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39
                                                                                                                                                                                                                                                           39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AKEAILK
                                                                                                                                                                                               AKEAILK
                                                                                                                                                                                                                                                           AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AF080264; AAD44502.1;
                                                                                                                                                                                                                                                                                                                           Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          193
193
                                                                                                                                                                                                                                                                                                                                                                                                                                                 194
194 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    O (TrEMBLrel. 13,
O (TrEMBLrel. 13,
1 (TrEMBLrel. 17,
                                                                                                                                                                                                                                                                                                                        larity 100.0%; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     151
                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ₽,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          20350 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    20463
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3.2%; Score 7; I
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                    3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13,
17,
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₩.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                    Score 7; DB 2; Pred. No. 56; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Created)
                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FB8AD969D89661CE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    A19DA4639F811CFE CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence update) annotation updat
                                 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       194
                                                                                                                                                                                                                                                                                                                                                      DB 2;
5. 56;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ffins (Fratercula arctica)
Faeroe Islands.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Marti Ras
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                                                                                 Length 194;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 193;
                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N., Weihe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
RESULT
Q9PC51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
RA Simpson A.J.G., Reinach F.C., Arruda P., Abreu F.A., Acencio M., RA Simpson A.J.G., Reinach F.C., Arruda P., Baia G.S., Baptista C.S., RA Barros M.H., Bonaccorsi E.D., Bordin S., Bove J.M., Briones M.R.S., RA Barros M.H., Bonaccorsi E.D., Bordin S., Bove J.M., Briones M.R.S., RA Bueno M.R.P., Camargo A.A., Camargo L.E.A., Carraro D.M., Carrer H., Colauto N.B., Colombo C., Costa F.F., Costa M.C.R., Costa-Neto C.M., RA Colauto N.B., Colombo C., Costa P.F., Costa M.C.R., Costa-Neto C.M., RA Colauto N.B., Colombo C., Costa P.F., Costa M.C.R., Costa-Neto C.M., RA Colauto N.B., Ferreira A.J.S., Ferreira V.C.A., Ferro J.A., RA Fagga J.S., Franca S.C., Franco M.C., Frohme M., Furlan L.R., RA Garnier M., Goldman G.H., Goldman M.H.S., Gomes S.L., Gruber A., RA Ho P.L., Hoheisel J.D., Junqueira M.L., Kemper E.L., Kitajima J.P., RA Krieger J.E., Kuramae E.E., Laigret F., Lambais M.R., Leite L.C.C., RA Krieger J.E., Martins E.M.E., Macina M.H.S., Martins E.M., Machado M.A., Madeira H.M.F., Marino C.L., Martins E.M.F., Marino C.L., RA Marques M.V., Martins E.M.F., Matsukuma A.Y., A Manda M.A., Madeira H.M.F., Matsukuma A.Y., Namaruka M.A., Nascimento A.L.T.O., Netto L.E.S., Namaruka A. Jr., Nobrega F.G., Nunes L.R., Oliveira M.A., Paris A., Peixoto B.R., Pereira G.A.G., Pereira H.A. Jr., Pesquero J.B., Quaggio R.B., Robetto P.G., Rodrigues V., de Rosa A.J.M., RA de Silva M.C., da Silva R.G., Santelli R.V., Sawasaki H.E., RA da Silva M.C., da Silva R.G., Silva W.A. Jr., RA da Silva M.A., Jr., Silva W.A. Jr., Ra da Silva M.C., Silvestri M.L.Z., Siqueira W.J., de Souza A.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9PC51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProDom; P
NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1996
01-NOV-1996
01-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Outer surface protein OSPC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-OCT-2000
01-MAR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              "Evolution of the Borrelia burgdor J. Bacteriol. 177:3036-3044(1995). EMBL; X84780; CAA59251.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=95286481;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Spirochaetales;
NCBI_TaxID=29519;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Borrelia garinii.
Bacteria; Spiroch
                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                            Xylella.
                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Xylella fastidiosa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hansen K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Theisen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-SL10
                                                                                                                                                                                                                                                                                                                                                MEDLINE=20365717; PubMed=10910347;
                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=2371;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ) AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                          Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        196
196 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (TrEMBLrel.) (TrEMBLrel.) (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3.2%;
nilarity 100.0%;
Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (TrEMBLrel. 01, Last (TrEMBLrel. 17, Last ce protein C (Fragment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Borre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (TrEMBLrel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ξ
;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PubMed=7768799;
M., Mathiesen M.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         20620 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15,
15,
20,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        01,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                          gamma subdivision; Xanthomonas group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last
Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 7; DB 2; Pred. No. 56; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8F1082A759B80821 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mikkelsen B., Lebech A.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               outer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             surface protein OspC.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length 196;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
OPROPER TO THE PROPERTY OF THE
Q9RR53
ID Q9
AC Q9
DT 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 21
                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                          Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                             Matches
Q9RR53;
01-MAY-2000
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 17, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation update)
01-graphic for the following th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NON TER
NON TER
SEQUENCE
                                                                                                Q9RR53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Marti-Ras N., Postic D., Foretz M., Baranton (Submitted (MAR-1997) to the EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=97478003; PubMed=9336916;
Ras N.M., Postic D., Foretz M., Barar
"Borrelia burgdorferi sensu stricto,
U.S.A.'?";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Q9R7B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lyme disease Borrelia."; Mol. Microbiol. 18:257-269(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRAIN=TETS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q9R7B1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     EMBL; L42887; AAB3695.1;
InterPro; IPR001800; Lipoprotein_6.
Pfam; PF011441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=139;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Int. J. Syst. Bacteriol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Livey I., Gibbs C.P., Schuster R., "Evidence for lateral transfer and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=96296448; PubMed=8709845;
                                                                                                                                                                                                                                                   141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 137
                                                                                                                                                                                                                                                                                                             39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39 AKEAILK 45
                                                                                                                                                                                                                                                   AKEAILK 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AKEAILK 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 h 3.2%;
Similarity 100.0%;
7; Conservative (
                                                                                                                                                                                                                                                                                                                                                                          Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Spirochaetales; Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   192
192 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  192
192 F
(TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A,
                                                                                                                                                                                                                                                                                                                                                                   3.2%; Score 7;
100.0%; Pred. No
ative 0; Mismat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20297 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20287 MW;
13,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47:1112-1117(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 7; DB 2; Pred. No. 55; 0; Mismatches
Last
                            Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6770502A20AAF764 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11846F7AC84C7E3D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baranton
                                                                                                                                                                                                                                                                                                                                                                          Mismatches
sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            recombination in OspC variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dorner F.;
                                                                                                                                                                                                                                                                                                                                                                                                             No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nton G.;
a bacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           192
                                                                                                193
                                                                                                                                                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 2;
                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 192
                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       species 'made in
                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels
                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
RESULT 22
03111
AC 03111
AC 03111
AC 03111
AC 03111
AC 03112
DT 01-DA
DT 01-DA
DT 01-DA
DT 01-DA
DT 01-DE
CON COLE
CON CON COLE
CON CON COLE
CON CO
  Q9S517
ID Q9
AC Q9
DT 01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                         RESULT 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                  Query Match
Best Local
Q9S517
Q9S517;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               O31115;
O1-JAN-1998
O1-JAN-1998
O1-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NON TER
NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                         ProDom;
NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=99091544; PubMed=9872945;
Wang I.N., Dykhulzen D.E., Qlu W., Dunn J.J., Bosler E.M., In Wang I.N., Bosler E.M., AF029860; AB86643.1; --
EMBL; AF029860; AB86643.1; --
EMBL; PF01441; Lipoprotein 6. 1.-
Pfam: PF01441; Lipoprotein 6. 1.-
                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=99091544; PubMed=9872945; Wang I.N., Dykhuizen D.E., Qiu W., "Genetic diversity of ospc in a louburgdorferi sensu stricto."; Genetics 151:15-30(1999).
EMBL; AF029862; AR886545.1; -...
EMBL; AF029862; AR886545.1; -...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-JAN-1998 (TrEMBLrel.
01-JAN-1998 (TrEMBLrel.
01-DEC-2001 (TrEMBLrel.
Outer surface protein C
                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Borrelia burgdorferi (Lyme disease spirochete).
Bacteria, Spirochaetales, Spirochaetaceae, Borr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        031115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Borrelia burgdorferi (Lyme disease spirochete)
Bacteria; Spirochaetales; Spirochaetaceae; Bor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JUN-2001 (TrEMBLrel. 17, Last a Outer surface protein C (Fragment)
                                                                                                                                                                                                                                                                                                                                      SEQÜENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N'A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
STRAIN=OC1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    145
                                                                                                                                                         145
                                                                                                                                                                                                  39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               eria; Spirochaetales;
_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AKEAILK 151
                                                                                                                                                         AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    l Similarity
7; Conserv
                                                                                                                                                                                                                                             Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        F01441; Lipoprotein_6; 1.
PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
193 AA;
                                                                                                                                                                                                                                                                                                                                      193 AA;
                                                                                                                                                                                                                                                                                                                                                             193
    (TrEMBLrel. 13,
                                                                                                                                                                                                                                               Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                               PRELIMINARY;
                                                                                                                                                           151
                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.2%; 500
100.0%; Pred. No. 100.0%; Mismatches
                                                                                                                                                                                                                                                                    3.2%;
100.0%;
                                                                                                                                                                                                                                                                                                                                      20596 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20502 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           05, Created)
05, Last sequence 19, Last annotation (Fragment).
    Created)
                                                                                                                                                                                                                                               0; Mismatches
                                                                                                                                                                                                                                                                      Score 7; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                                                                                                                                                                                    018A4CB310475A58 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEFDB5AFF8986D1E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    W., Dunn J.J., Bosler E.M., Luft B.J.,
local population of Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence update) annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        annotation update)
                                               193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           193
                                                                                                                                                                                                                                                                      DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DB 2;
                                               ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Borrelia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length 193;
                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                           Length 193;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0; Indels
                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Luft B.J.;
                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0
```

```
RESULT 17
P70818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 16
P94223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOOR PTT
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                 ક
                                                                                                                                                                                                                                                                                                                                                                                                            ACCOME BY ACCOME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
  SAEGGERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Marti-Ras N., Postic D., Foretz M., submitted (MAR-1997) to the EMBL/Ger EMBL, U91797; AAB81894.1; InterPro; IPRO01800; Lipoprotein_6; 1. ProDom; PD001149; Lipoprotein_6; 1.
                                                         P70818;
P70818;
01-FEB-1997
01-FEB-1997
01-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01.MAY-1997 (TERMBLTel. 03, Create 01-MAY-1997 (TERMBLTel. 03, Last s 01-UN-2001 (TERMBLTel. 17, Last a 01-UN-2001 (TERMBLTel. 17, Last a Outer surface protein C (Fragment)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=TETS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                               NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=96296448; PubMed=8709845;
Livey I., Gibbs C.P., Schuster R.,
"Evidence for lateral transfer and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia burgdorferi (Lyme disease spirochete).
Bacteria; Spirochaetales; Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ras N.M., Postic D., I
"Borrelia burgdorferi
U.S.A.'?";
Int. J. Syst. Bacteric
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; L42879; AAB36988.1; -
InterPro; IPRO01800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   P94223
  Borrelia
                                      Outer surface
                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mol. Microbiol. 18:257-269(1995).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         133
                                                                                                                                                                                                                                               136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               39
                                                                                                                                                                                                                                                                                   39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       disease Borrelia.",
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AKEAILK 45
                                                                                                                                                                                                                                             AKEAILK 142
                                                                                                                                                                                                                                                                                   AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AKEAILK 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                            Similarity 7; Conserv
burgdorferi (Lyme
                                                                                                                                                                                                                                                                                                                                                                                                          191
191 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      182
182 /
                                                       7 (TrEMBLrel. 02, C
7 (TrEMBLrel. 02, I
1 (TrEMBLrel. 19, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3.2%; Score 7; DB:
llarity 100.0%; Pred. No. 53
Conservative 0; Mismatches
                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteriol.
                                      protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    182
19202 MW;
                                                                                                                                                                                                                                                                                                                                                                                                          19995 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Foretz M., Baranton G.; i sensu stricto, a bacterial
                                    (Fragment).
                                                                                                                                                                                                                                                                                                                                                                    3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Foretz M., Baranton C
he EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      47:1112-1117(1997)
  disease
                                                           Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Created)
                                                                                                                                                                                                                                                                                                                            <u>,,</u>
                                                                                                   Created)
                                                                                                                                                                                                                                                                                                                                               Score 7;
Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      422146F99AA57BF2
                                                                                                                                                                                                                                                                                                                                                                                                          267D0355A6FD7E1C CRC64;
                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Dorner F.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            recombination
spirochete).
                                                                                                                                                                                                                                                                                                                                                 No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                            191
                                                                                                                                                                                                                                                                                                                                               DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                            ₽
                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     G
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0,
                                                                                                                                                                                                                                                                                                                            ۰,
                                                                                                                                                                                                                                                                                                                                                                  Length 191;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 182;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            species
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ij
                                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ospc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'made
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۲.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                            0,
```

```
Q9S3P
ID Q9S3P
AC Q9S3P
DT 01-MA
DT 01-MD
DT 01-UL
DE OULER
GN OSPC.
OC Bacte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 18
P94243
                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches
                                                                                                                                                                                                     Query Match
Best Local
                                                                                                                                                                                           Matches
                              Q9S3P3;
01-MAY-2000 (TrEMBLrel. 1
01-MAY-2000 (TrEMBLrel. 1
01-JUN-2001 (TrEMBLrel. 1
Outer surface protein C (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P94243;
01-MAY-1997
01-MAY-1997
01-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Immuniuzation with OspA, but not ospC, provides protection of mice challenged with North American isolates of Borrelia burgdorferi."; Submitted (SEP-1996) to the EMBL/GenBank/DDBJ databases.

EMBL; LB1131; AAB06569.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProDom;
                                                                                                                                                                                                                                                NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                      01-MAY-1997 (TrEMBLrel. 03, Created)
01-MAY-1997 (TrEMBLrel. 03, Last sequence update)
01-MAY-1997 (TrEMBLrel. 17, Last annotation update)
01-UN-2001 (TrEMBLrel. 17, Last annotation update)
Outer surface protein C (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN=2-1498 CA4;
Probert W.S., Crawford M.R.,
"Immuniuzation with OspA, bu
                      OSPC.
                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                                                                                                                                    InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                      Mol. Microbiol. 18:257-269(1995).
EMBL; L42869; AAB37012.1; -.
                                                                                                                                                                                                                                                                                                                             Lyme
                                                                                                                                                                                                                                                                                                                                                                                                              NCBI
                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia burgdorferi (Lyme disease spiroch
Bacteria; Spirochaetales; Spirochaetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              P94243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacteria; Spirochaetales;
NCBI_TaxID=139;
[1]
Bacteria;
          Borrelia burgdorferi (Lyme
                                                                                        Q9S3P3
                                                                                                                                                                                                                                                                                                                                        MEDLINE=96296448; PubMed=8709845;
Livey I., Gibbs C.P., Schuster R.,
"Evidence for lateral transfer and
                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                               OSPC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      136
                                                                                                                                               137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39
                                                                                                                                                                    39 AKEAILK
                                                                                                                                                                                                                                                                                                                             disease Borrelia.";
                                                                                                                                                                                                                                                                                                                                                                                                            TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AKEAILK
                                                                                                                                              AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity 7; Conserv
                                                                                                                                                                                          Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                     FROM N.A.
Spirochaetales;
                                                                                                                                                                                                                                      192
192 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           191 AA;
                                                                                                                                                                                        3.2%; Scilarity 100.0%; F
Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3.2%; Si
larity 100.0%; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRELIMINARY;
                                                                                        PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       142
                                                                                                                                               143
                                                                                                                                                                      45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           45
                                                                                                                                                                                                                                                  192
                                                                                                                                                                                                                                      19981 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20126 MW;
                                           13, Created)13, Last sequence update)17, Last annotation updat
                                  (Fragment).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Spirochaetaceae; Borrelia
Spirochaetaceae;
          disease spirochete)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 7; DB 2; Pred. No. 55; 0; Mismatches
                                                                                                                                                                                                     Score 7;
; Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D2B9B1C82B4DC3C0 CRC64;
                                                                                                                                                                                                                                        E9C8A8B304A75388 CRC64;
                                                                                                                                                                                            Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                        spirochete).
etaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                          Dorner F.; recombination
                                                                                                                                                                                                        No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               192
                                                                                         192
                                                                                                                                                                                                       DB 2;
                                                                                         ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2
  Borrelia
                                           update)
                                                                                                                                                                                            0
                                                                                                                                                                                                                Length 192;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 191;
                                                                                                                                                                                                                                                                                                                                          ä
                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                                                                                                                                                                                                                                                                          OspC variation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                            ín
                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
Q4499
ID Q4499
AC Q4499
AC Q4499
DT 01-NC
DT 01-NC
DT 01-JU
DE OUTER
GN OSPC.
OS BOIRE
OC BOIRE
OC BOIRE
CN (1)
RN [1]
RN [1]
RN HAINE
RA HAINE
RA HAINE
RA Theis
RA THON
DR Pidm;
DR Pidm;
DR NON T
                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SOTTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                                                                                                                         Query Match
Best Local
                                                                                                                                                             01-MAY-2000
01-MAY-2000
01-JUN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pfam; PF
ProDom;
NON_TER
NON_TER
MEDLINE=94075528; PubMed=8253951; Theisen M., Frederiksen B., Lebech A.M., Vuust J., "Theisen M., Frederiksen B., Lebech A.M., Vuust J., "Polymorphism in ospC gene of Borrelia burgdorferi immunoreactivity of OspC protein: implications for use of OspC protein as a diagnostic antigen."; J. Clin. Microbiol. 31:2570-2576(1993).
                                                                                                                                                                                                           Q9REH7
                                                                                                                                                                                                                                                                                                                                                                     NON_TER

    Bacteriol. 177:3036-3044 (1995).
    EMBL; X84783; CAA59254.1; -.
    InterPro; IPR001800; Lipoprotein 6.
    Pfam; PF01441; Lipoprotein 6; 1.

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          01-NOV-1996 (TrEMBLrel.
01-NOV-1996 (TrEMBLrel.
01-JUN-2001 (TrEMBLrel.
Outer surface protein C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q44999
                                                                               SEQUENCE FROM
                                                                                                                 Borrelia burgdorferi
Bacteria; Spirochaeta
                                                                                                                                                   Outer surface
                                                                                                                                                                                                Q9REH7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN-TXGW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bacteria; Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Q44999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Theisen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDLINE=95286481;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia burgdorferi (Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Evolution of the Borrelia burgdorferi
                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              139
                                                                                                                                                                                                                                                                                        39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  39
                                                                                                                                                                                                                                                                                        AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AKEAILK 45
                                                                                                                                                                                                                                                                 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PF01441; Lipoprotein_6;
m; PD001149; Lipoprotein_
                                                                                                                                                                                                                                                                                                                                                                               PD001149; Lipoprotein_6; 1.

1
                                                                                                                                                                                                                                                                                                              Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        M., Borre M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity 7; Conser
                                                                                                                 Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   176
176 AA;
                                                                                                                                                                                                                                                                                                                                                          177
177 AA;
                                                                                                                                                 ) (TrEMBLrel. 13,
) (TrEMBLrel. 13,
L (TrEMBLrel. 17,
lace protein C (France
                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                               N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=7768799;
                                                                                                                                                                                                                                                                                                                                                          18800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18109
                                                                                                                                                                                                                                                                                                                        3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100.0%; **
                                                                                                                         (Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mathiesen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 01, Created)
. 01, Last seq
. 17, Last ann
C (Fragment).
                                                                                                                                                  (Fragment).
                                                                                                                                                                                                                                                                                                                                                         MW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MW:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         s disease spirochete).
Spirochaetaceae; Borr
                                                                                                                spirochete).
Spirochaetaceae; Borr
                                                                                                                                                             Last
Last
                                                                                                                                                                                                                                                                                                              ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score 7; DB 2; Pred. No. 51; 0; Mismatches
                                                                                                                                                                                                                                                                                                            Score 7; DB 2; Pred. No. 51; 0; Mismatches
                                                                                                                                                                                    Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Created)
                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                          156671B9614E7A2D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Cla2C029A1FC3DB4 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       м.ц.,
                                                                                                                                                             annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sequence up
                                                                                                                                                                                                          178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                   DB 51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mikkelsen B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB
51;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   outer
                                                                                                                                                                                                           B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    A
                                                                                                                                                            update)
on update)
                                                                                                                                                                                                                                                                                                                                  2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                   surface
                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                 Length 177;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 176;
                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                       taxonomy and
                                            Hansen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lebech A.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein OspC.";
                                            Χ.,
                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      <u>.</u>
                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                       for
                                                                                                                                                                                                                                                                                                            ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ٥,
```

```
RESULT
O34123
ID
AC
O34020
AC
O3
AC
O4
AC

DR DR DR SQ
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match
Best Local S
Matches
                                                                                                                                                                                                   Q9R7B2;
Q9R7B2;
01-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON_TER
NON_TER
SEQUENCE
                                                                                        01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last amnotation update)
Outer surface protein C (Fragment).
Borrelia burgdorferi (Lyme disease spirochete).
Bacteria; Spirochaetales; Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProDom;
NON_TER
NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence upda
01-JUN-2001 (TrEMBLrel. 17, Last annotation up
Outer surface protein C (Fragment).
Borrelia burgdorferi (Lyme disease spirochete)
Bacteria; Spirochaetales; Spirochaetaceae; Bor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Marti-Ras N., Postic D., Foretz M., Submitted (MAR-1997) to the EMBL/Ger EMBL; U91800; AAB81897.1; -. InterPro; IPR001800; Lipoprotein_6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         O34123;
01-JAN-1998
    MEDLINE=97478003;
                      SEQUENCE FRO
STRAIN=TETS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=97478003; PubM
Ras N.M., Postic D., F
"Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A. STRAIN=TETS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  034123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL; X73622;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pfam; PF01441; Lipoprotein
                                                                                                                                                                                                                                                                                                                                             132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   130
                                                                                                                                                                                                                                                                                 15
                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                .S.A.′?";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          39 AKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                    AKEAILK
                                                                                                                                                                                                                                                                                                                                             AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AKEAILK 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 F01441; Lipoprotein_6; 1. PD001149; Lipoprotein_6;
                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Syst.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PD001149;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 7; Conserv
                                         FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               180
180 /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3.2%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                         larity 100.0%;
Conservative 0;
                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                    45
                                                                                                                                                                                                                                                                                                                                             138
                                         z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bacteriol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAA52001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; Lipoprotein_6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PubMed=9336916;
D., Foretz M., Baranton G.;
feri sensu stricto, a bacterial
    PubMed=9336916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18545
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18894 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05, Created)
05, Last sequence update)
17, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Foretz M., Baranton G
he EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47:1112-1117 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score '
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3D8C7E4A6575ADD4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              D619AE4C646F14EB
                                                                                                                                                                                                                                                                                                                                                                                                                           red. No. 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NO.
                                                                                                                                                                                                                                            182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                                                                               DB
52;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 2;
                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                2
                                                                                                    Borrelia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    update)
                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 180;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 species
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      178;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'made
                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     n
                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
```

```
RESULT
OPR 719
OPR 720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AC CONTRACTOR REPORT OF THE CONTRACTOR REPORT 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
   Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                               ProDom; P
NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last annotation updat
Outer surface protein C (Fragment).
Borrelia burgdorferi (Lyme disease spirochete).
Bacteria, Spirochaetales; Spirochaetaceae; Borrel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             098780;
01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence updat.
01-JUN-2001 (TrEMBLrel. 17, Last annotation upd.
01-UN-2001 (TrEMBLrel. 17, Last annotation upd.
01ter surface protein C (Fragment).
Borrella burgdorferi (Lyme disease spirochete).
Bacteria; Spirochaetales; Spirochaetaceae; Borre
                                                                                                                                                                                                                                                        Marti-Ras N., Postic D., Foretz M., Baranton G
Submitted (MAR-1997) to the EMBL/GenBank/DDBJ
EMBL; U91801; AAB81898.1; .
InterPro; IDR001800; Lipoprotein 6.
Pfam; PF01441; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Marti-Ras N., Postic D., Foretz M., Submitched (MAR-1997) to the EMBL/Ge EMBL, U91799; ANBB1896.1; -. InterPro; IPR001800; Lipoprotein_6. Pfam; PF01441; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=97478003; PubMed=9336916;
Ras N.M., Postic D., Foretz M., Baranton G.;
"Borrelia burgdorferi sensu stricto, a bacterial
U.S.A.'?";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=97478003; PubMed=9336916;
Ras N.M., Postic D., Foretz M., Baranton
"Borrelia burgdorferi sensu stricto, a ba
                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A. STRAIN=TETS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STRAIN=TETS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Q9R7A9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM STRAIN=TETS;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Int. J. Syst. Bacteriol. 47:1112-1117(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AKEAILK 45
                                                                                                                                                                                                                          F01441; Lipoprotein_6; 1. PD001149; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PD001149; Lipoprotein_6; 1.

1
      Similarity 7; Conser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Syst.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    159
                                                                                                                               163 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      159
   3.2%;
larity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteriol. 47:1112-1117(1997)
                                                                                                                                   AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AA,
                                                                                                                               163
17210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16861 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Foretz M.,
                                                                                                                                   MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                 Score 7; ; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL/GenBank/DDBJ
      0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Score 7; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5285D422C43DC213 CRC64;
                                                                                                                                   7550141651BD01FF CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
      Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence update) annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Baranton G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             163
                                    DB 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        bacterial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ₽
                                                               2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                                                                                                                                               ຸດ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <u>.</u>.
   0
                                                            Length 163
                                                                                                                                                                                                                                                                                                                                                          databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 159;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        species 'made in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         species 'made
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'n
Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT 11
034119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 10
Q9R7B4
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
В
                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local S
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Borrelia burgdorferi
U.S.A.'?";
                                                                                                                                                                                                                                                                                                                                                                                 NON TER
NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last amnotation updat
Outer surface protein C (Fragment).
Borrelia burgdorferi (Lyme disease spirochete).
Bacteria; Spirochaetales; Spirochaetaceae; Borrel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Q9R7B4
Q9R7B4;
                                                                                                                                                                  01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-JUN-2001 (TrEMBLrel. 17, Last amnotation updat
Outer surface protein C (Fragment).
Borrelia burgdorferi (Lyme disease spirochete).
Bacteria; Spirochaetales; Spirochaetaceae; Borrel
        Marti-Ras N., Postic D., Foretz M., Baranton (
Submitted (MAR-1997) to the EMBL/GenBank/DDBJ
EMBL; U91791; AAB81888.1; -
                                       SEQUENCE FROM STRAIN=TETS;
                                                                                MEDLINE=97478003; PubMed=9336916;
Ras N.M., Postic D., Foretz M., Baranton G.;
"Borrelia burgdorferi sensu stricto, a bacterial
U.S.A.'?";
                                                                                                                                                                                                                      034119;
01-JAN-1998
                                                                                                                                                                                                                                            034119
                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; U91792; AAB81889.1; -.
InterPro; IPR001800; Lipoprotein_6.
Pfam; PF01441; Lipoprotein_6; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Marti-Ras N., Postic D., For Submitted (MAR-1997) to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRAIN=TETS;
                                                                                                                           SEQUENCE FRO
STRAIN=TETS;
                                                                                                                                                         NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                  ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Int. J. Syst. Bacteriol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=97478003;
Ras N.M., Postic I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      138
                                                                                                                                                                                                                                                                                                                    39 AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AKEAILK
                                                                                                                                                                                                                                                                                                AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AKEAILK
                                                                                                                                                                                                                                                                                                                                       Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                      PD001149; Lipoprotein_6; 1.
                                                                      Syst.
                                                                                                                                     FROM N.A.
IPR001800; Lipoprotein_6.
                                                                                                                                                                                                                                                                                                                                                                                 175
175 AA;
                                                                                                                                                                                                                                            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRELIMINARY;
                                                                                                                                                                                                                                                                                                150
                                                                                                                                                                                                                                                                                                                    45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         45
                                                  N.A.
                                                                       Bacteriol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PubMed=9336916;
D., Foretz M., Baranton G.;
feri sensu stricto, a bacterial
                                                                                                                                                                                                                                                                                                                                                                               175
18573 MW;
                                                                                                                                                                                                                                                                                                                                                 3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            47:1112-1117(1997)
                                                                       47:1112-1117(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Foretz M., Baranton (
he EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                  Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                 EC059E7BD3AC3250 CRC64;
                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                   . No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Baranton G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    175
                                                                                                                                                                                                                                             176
                                                                                                                                                                                                                                                                                                                                                   DB 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Borrelia.
                                                                                                                                                                                                  update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                           databases
                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                            Length
                      databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  species 'made
                                                                                           species
                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                            'made
                                                                                                                                                                                                                                                                                                                                         0
                                                                                            ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'n
                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  the
                                                                                                                                                                                                                                                                                                                                         0
```

```
RESULT 6
Q9SHZ7
ID Q9SH
AC Q9SH
                                                                   ₽
                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                Matches
                                                                                                                         Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
Q9SHZ7
Q9SHZ7;
                                                                                                                                                                                                                                                                                                                                                                                                          QBRVM7;
                                                                                                                                                          NON_TER
NON_TER
SEQUENCE
                                                                                                                                                                                                    STRAIN=CV. EVERESTE X MM106; TISSUE=LEAF; Venisse J.-S., Malnoy M., Faize M., Paulin J.-P., Brisset M.-N.; Venisse J.-S., Malnoy M., Faize M., Paulin J.-P., Brisset M.-N.; "Modulation of defense responses and uning incompatible and comparible interactions with Erwinia amylovora."; Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases. EMBL; AF494400; AAM12893.1; -.
                                                                                                                                                                                                                                                                                                                                                                       01-JUN-2002 (TrEMBLrel. 21,
01-JUN-2002 (TrEMBLrel. 21,
01-JUN-2002 (TrEMBLrel. 21,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN-CV. EVERESTE X MM106; TISSUE-LEAF; Venisse J.-S., Malnoy M., Faize M., Paulin J.-P., Brisse "Modulation of defense responses of Malus during incompal compatible interactions with Erwinia amylovora."; Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases. EMBL, AF494399; AAM12892.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QBRVM8;
01-JUN-2002 (TrEMBLrel. 21,
01-JUN-2002 (TrEMBLrel. 21,
01-JUN-2002 (TrEMBLrel. 21,
Chalcone isomerase (Fragment
                                                                                                                                                                                                                                                                                                       Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eveurosids I; Rosales; Rosaceae; Maloideae; Malus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core everosids I; Rosales; Rosaceae; Maloideae; Malus.
                                                                                                                                                                                                                                                                                         NCBI_TaxID=3750;
                                                                                                                                                                                                                                                                                                                                         Malus domestica (Apple) (Malus sylvestris).
                                                                                                                                                                                                                                                                                                                                                               Chalcone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NON_TER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=3750;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Malus domestica (Apple) (Malus sylvestris)
                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE FROM N.A.
                                                                                         157
                                                                                                                                                                                             [somerase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Romerase
                                                                                                                                                                                                                                                                                                                                                                                                                                            σ
                                                                   44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44
                                                                   DAEGKAI
                                                                                         DAEGKAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DAEGKAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DAEGKAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Similarity 7; Conserv
                                                                                                             Similarity 7; Conserv
                                                                                                                                                          120
120 #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120
120 #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative
                                                                                                              Conservative
            PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                       PRELIMINARY;
                                                                   50
                                                                                         163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    163
                                                                                                                                                          AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AΑ;
                                                                                                                                                                    120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (Fragment).
                                                                                                                                                                                                                                                                                                                                                            (Fragment).
                                                                                                                                                           12954 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     12993
                                                                                                                                    3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MW;
                                                                                                             s; Score 7; DB 1
s; Pred. No. 35;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                          Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 7; DB 1; Pred. No. 35; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Last annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Created)
                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                     Last
                                                                                                                                                          8237AF92C38A124C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4C0D6146C3887127
                                                                                                                                                                                                                                                                                                                                                                                    sequence update)
            140
                                                                                                                                                                                                                                                                                                                                                                                                                       120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DB 10;
35;
                                                                                                                                    DB 10;
            B
                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0;
                                                                                                                                    Length 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 120;
                                                                                                                                                          CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               incompatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brisset
                                                                                                                                                                                                                                                                                                                   eudicots;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            i; Tracheophyta;
eudicots; Rosidae;
                                                                                                                                                                                                                                                                                                                Tracheophyta;
udicots; Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           M. -N.;
                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                              Gaps
                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

```
RESULT
015401
                      Ś
                                                                                                    ID ACCORD DIT
밁
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                               Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local :
                                                   Matches
                                                                                                                                                                                                                                                                                                 015401
015401;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDLINE=20083487; PubMed=10617197;
Lin X., Kaul S., Rounsley S.D., Shea T.P., Benito M.-I., Town C.D.,
Fujii C.Y., Mason T.M., Bowman C.L., Barnstead M.E., Feldblyum T.V.,
Buell C.R., Ketchum K.A., Lee J.J., Ronning C.M., Koo H., Moffat K.S.,
Cronin L.A., Shen M., VanAken S.E., Umayam L., Tallon L.J., Gill J.E.,
Adams M.D., Carrera A.J., Creasy T.H., Goodman H.M., Somerville C.R.,
Copenhaver G.P., Preuss D., Nierman W.C., White O., Eisen J.A.,
Salzberg S.L., Fraser C.M., Venter J.C.;
"Sequence and analysis of chromosome 2 of the plant Arabidopsis
                                                                                                                 Submitted (NO EMBL; U78082;
                                                                                                                                                                                            Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                              01-JAN-1998 (TrEMBLrel. 05, Created)
01-JAN-1998 (TrEMBLrel. 05, Last sequence update)
01-JAN-1998 (TrEMBLrel. 05, Last annotation update)
RNA polymerase transcriptional regulation mediator.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Submitted (MAR-2000) to the EMBL/GenBank/DDBJ databases EMBL; AC007232; AAD25816.1; -. SEQUENCE 140 AA; 15338 MW; COC8D51D4739DAB8 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FOR STRAIN-CV.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosidae; eurosids II; Brassicales; Brassicaceae; Arabidopsis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-MAY-2000 (TrEMBLrel
01-MAY-2000 (TrEMBLrel
01-DEC-2001 (TrEMBLrel
En/Spm-like transposon
                                                                                                    SEQUENCE
                                                                                                                                           Kim Y.-J
                                                                                                                                                        SEQUENCE
                                                                                                                                                                              NCBI_TaxID=9606;
                                                                                                                                                                                                                     Homo sapiens (Human)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nature 402:761-768(1999).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE FROM N.A.
STRAIN=CV. COLUMBIA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Arabidopsis thaliana (Mouse-ear cress).
                        170 LNSGSVL
                                                                                                                                                                                                                                                                                                                                                                                                      155 ADDAEGK 161
24
                                                                                                                                                                                                                                                                                                                                                                            46 ADDAEGK 52
LNSGSVL
                                                . Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                              . Similarity 7; Conserv
                                                                                                                                                        FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FROM N.A.
// COLUMBIA;
                                                                                                                             (NOV-1996)
                                                                                                    157
                                                3.2%;
llarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (TrEMBLrel. 13, Created)
(TrEMBLrel. 13, Last sequence update)
(TrEMBLrel. 19, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                              PRELIMINARY;
30
                                                                                                                  AAB84363.1;
                                                                                                    ΑA;
                                                                                                    18101 MW;
                                                                                                                                                                                             Primates;
                                                                                                                                                                                                        Chordata;
                                                                                                                              to the
                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%; Score 7; DB:
100.0%; Pred. No. 41
tive 0; Mismatches
                                                               Score; Pred.
                                                   0
                                                                                                                              EMBL/GenBank/DDBJ databases
                                                                                                                                                                                          Craniata; Vertebrata; Catarrhini; Hominidae;
                                                                                                                                                                                                                                                                                                              PRT;
                                                ore 7; DB 4
Pred. No. 46;
Mismatches
                                                                                                    2894BEF4D2B9BF9F
                                                                                                                                                                                                                                                                                                              157
                                                                                                                                                                                                                                                                                                                                                                                                                                     DB . 41;
                                                               DB 4;
                                                                                                                                                                                                                                                                                                              ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                       10;
                                                                                                                                                                                            Hominidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
                                                   0
                                                                         Length 157;
                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length 140;
                                                                                                      CRC64;
                                                   Indels
                                                                                                                                                                                                           Euteleostomi;
                                                                                                                                                                                               Homo
                                                 0;
                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                               0,
```

Q9R7B0

Q9R7B0

PRELIMINARY;

PRT;

159

₽

RESULT

```
SORRER RECENT OF THE PROPERTY 
                     Ś
 밁
                                              Query Match
Best Local S
Matches 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Q45178;
01-NOV-1996 (TrEMBLrel. 01, C
01-NOV-1996 (TrEMBLrel. 01, L
01-JUN-2001 (TrEMBLrel. 17, L
Outer surface protein C.
                                                                                         Pukunaga M., Hamase A.;
"Outer surface protein C gene sequence analysis of Borrelia burgdorferi sensu lato isolates from Japan.";
J. Clin. Microbiol. 33:2415-2420(1995).

EMBL; D49378; BAA08376.1;
InterPro; IPR001800; Lipoprotein 6.
Pfam; PP01441; Lipoprotein 6; 1.
ProDom; PD001149; Lipoprotein 6; 1.
SEQUENCE 210 AA; 21973 MW; EED09CF942A599E0 CRC64;
                                                                                                                                                                                                                                             Borrelia garinii.
Bacteria; Spirochaetales;
NCBI_TaxID=29519;
[1]
                                                                                                                                                                                                                     SEQUENCE FROM STRAIN=HT64
                                                                                                                                                                                                                                                                                                                                                         Q45178
                                                                                                                                                                                                       MEDLINE=96025162; PubMed=7494039;
 154
                       38
LAKEAILK 161
                   LAKEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                        h
3.7%; Score 8; DB 2;
Similarity 100.0%; Pred. No. 5.1;
8; Conservative 0; Mismatches
                                                                                                                                                                                                                                FROM N.A.
                                                                                                                                                                                                                                                                                                                                                         PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          J.0%;
O;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3 2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
17
                                                                                                                                                                                                                                                                   Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             059677
059677
09KP20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q8W250
Q9YEU4
Q9EYY0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q8R8Q1
Q9NVL5
Q9SEI12
Q8ZEI2
Q8XCC6
Q9X8J9
Q9XXY1
Q8XXXI
Q8XXXI
Q8XXXI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Q8YHK7
Q9AJE2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q8RZS4
P97002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            066233
Q8YX86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    QBRKV2
Q9ZVA7
QBYXW9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q9UW05
017392
                                                                                                                                                                                                                                                                                                        Last
Last
                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q8ZBP2
Q8XFR3
Q8ZMF5
Q8Z470
                                                                                                                                                                                                                                                                                                                                                                                                                     ALIGNMENTS
                                                                                                                                                                                                                                                                                                        sequence update)
annotation update)
                                                                                                                                                                                                                                                                                                                                                         210
                                                                                                                                                                                                                                                                                                                                                         ₹
                                              0
                                                                      Length 210;
                                               Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qyzva7 arabidopsis
Q8yxw9 anabaena sp
Q66233 escherich:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ojnvl5 homo sapien
Ojbkml naegleria f
OBzeiz yersinia pe
Okzeiz yersinia pe
OkkhO3 salmonella
Okscc6 escherichia
Okscc6 escherichia
Oksc6 escherichia
Oksc7 arabidopsis
Oksc47 drosophila
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q8x7x7 escherichia
Q59677 schizosacch
Q9kp20 vibrio chol
Q9kp20 vibrio chol
Q9uw05 clavispora
Q17392 caenorhabdi
Q8zbp2 yersinia pe
Q8xfr3 salmonella
Q8zxf3 salmonella
Q8z470 salmonella
Q8z470 salmonella
Q8z470 salmonella
Q8z470 salmonella
Q8z470 testastospo
Q8zfg1 thermoanaer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                P97002 streptococc
Q8w250 oryza sativ
Q9yeu4 aeropyrum p
Q9eyy0 klebsiella
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Q8ypal anabaena sp
O75125 homo sapien
Q920k3 rattus norv
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q96t73 homo sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Q8rkv2 streptococc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Q8yx86 anabaena sp
Q8rzs4 oryża sativ
                                               ٥,
                                               Gaps
                                              0
```

```
Q47616
ID Q47616
AC Q47616;
DT Q1-NOV-1996
DT Q1-NOV-1996
DT Q1-JUN-2002
DE ORF120.
OS Escherichia (
OC Bacteria; Pro
OC Bacteria; Pro
OC Bacterio; Pro
OC Bact
                                                                                                                                                                                                                                                                                                                                                                                                                                      RESUMPT OR REVINED TO COLUMN OF STANDARD STANDAR
RESULT 4
Q8RVM8
ID Q8RV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                               S
                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                      NON TER
NON TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Q8RVM9;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Miyamoto K., Inokuchi H.;
"Nucleotide sequence of 5'flanking region of the ribosom
(rrnH) in E. coli.";
Submitted (MAY-1993) to the EMBL/GenBank/DDBJ databases.
EMBL, D15061; BAA03660.1; -.
InterPro; IPR003439; ABC_transportr.
Pfam; PF00005; ABC_tran; 1.
SEQUENCE 120 AA; 13232 MW; B6971E2CB75A6E0C CRC64;
      Q8RVM8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN-CV. EVERESTE X MM106; TISSUE-LEAF; Venisse J.-S., Malnoy M., Faize M., Paulin J.-P., Brisse "Modulation of defense responses of Malus during incompa compatible interactions with Erwinia amylowora."; Submitted (MAR-2002) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Malus domestica (Apple) (Malus sylvestris).
Eukaryota; Viridiplantae; Streptophyta; Bmbryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid
eurosids I; Rosales; Rosaceae; Maloideae; Malus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chalcone isomerase (Fragment). CHI-1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   01-JUN-2002 (TrEMBLrel. 21, Created)
01-JUN-2002 (TrEMBLrel. 21, Last sequence update)
01-JUN-2002 (TrEMBLrel. 21, Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Proteobacteria; Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Escherichia coli.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AF494398; AAM12891.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=3750;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=K-12;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      173 GSVLVDG
                                                                                                                                                                                                             157 DAEGKAI 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
                                                                                                                                                                       44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GSVLVDG
                                                                                                                                                                           DAEGKAI
                                                                                                                                                                                                                                                                                                 h 3.2%; Sc Similarity 100.0%; P 7; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                      120
120 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRELIMINARY;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRELIMINARY;
      PRELIMINARY;
                                                                                                                                                                       50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.2%; but
100.0%; Pred. No. --
ive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            120
                                                                                                                                                                                                                                                                                                                                                                                                                                             12978 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21,01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Created)
Last sequence up
                                                                                                                                                                                                                                                                                                                                    Score 7;
Pred. No
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRT;
      PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                         33F511A25B4AB8C3 CRC64;
                                                                                                                                                                                                                                                                                                        red. No. 35
Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              120
      120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           120 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 2;
                                                                                                                                                                                                                                                                                                                                        DB 10; Length 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₿
      Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of the ribosomal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   core eudicots; Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 120;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , Brisset M.-N.; incompatible an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                            Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RNA gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                            0
```

	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
,	<b>あ                                    </b>
44444444444444444444444444444444444444	
	2 Q9A 116 Q8 110 Q9A 13 Q8X 13 Q8X 15 Q16X 15 Q81 17 Q99 110 Q99 111 Q99 111 Q99 111 Q99
Q8UIZ1 Q9YAS1 Q9YAS1 Q99SH13 Q99SH13 Q99SH10 Q97X19 Q9ASH03 Q9XE66 Q9XE66 Q9XE66 Q9XE66 Q9XE66 Q9XE76 Q9YZ95 P96860 Q9SYP70 Q9HGJ1 Q9YZUB P72922 Q9YZUB P72922 Q9YZUB Q9XE771 Q9HGJ1 Q9SHQ7 Q9FGJ1 Q9SHQ7 Q167771 Q9FGJ1 Q9SHQ7 Q9FGJ6 Q9SHQ7 Q9FGJ6 Q9SHQ7 Q9FGJ7 Q9FGJ6 Q9SHQ7 Q9FGJ6 Q9SHQ7 Q9FGJ6 Q9SHQ7 Q9FGJ6 Q9SHQ7 Q9FGJ7 Q9FGJ6 Q9SHQ7 Q9FGJ6 Q9SHQ7 Q9FGJ6 Q9SHQ7 Q9FGJ6 Q9FGJ6 Q9FGJ7 Q9FGJ6 Q9FGGG6 Q9FGGG6 Q9FGG6	MF5 YDL6 4JQ9 4JQ9 0A9 0A9 765 788 963 788 9781 781 781 7820 780 780 780 780 780 780 780 780
OBuirl agrobacteri O99asl aeropyrum p O95kl3 macaca fasc O98b04 rhizobium 1 O92iu0 rickettsia O97x39 sulfolobus O97x39 sulfolobus O97x39 sulfolobus O97x39 sulfolobus O92mt6 rhizobium m O9xe6 sorghum bic O96xp8 sulfolobus O9x295 pyrococcus O96xp8 sulfolobus O9x295 pyrococcus O9x295 pyrococcus O9x295 pyrococcus O9x295 pyrococcus O9x296 saccharomyc O9mg7 saccharomyc O9mg7 saccharomyc O9hgj6 saccharomyc O9hgj6 saccharomyc O9hgj6 saccharomyc O9hgj6 saccharomyc O9hgj7 saccharomyc O9hgj6 sarabidopsis O9sxq7 deinococcus O16773 homo sapien O9186 arabidopsis O99186 arabidopsis O99186 arabidopsis O99186 arabidopsis O9900 oryza sativ O9kO8B neisseria m O9jve6 neisseria m O9jve6 neisseria m O9jve6 neisseria m O9jve6 arabidopsis O85490 arabidopsis O89m14 campylobact O99c66 rabizobium l O89d54 brucella me O9667 caenorhabdi O88494 GJycine max O9ksx3 vibrio chol O8t286 dictyosteli O8t286 dictyosteli O8t286 dictyosteli O8t286 pseudomonas O9xe67 sorghum bic O8x69 pseudomonas O9x69 sorghum bic O8x69 pseudomonas O9x69 sorghum bic O8x613 yersinia pe O8ayd7 oryza sativ	Q9amf5 br Q8yd16 k Q94jq9 a Q8xjn2 c Q8x0n9 pr Q8x0n8 pr Q8x0n8 rr Q8t2w3 tr Q9t2w3 tr Q97aq8 tr Q97aq8 tr Q97aq8 tr Q9ff30 a Q9ff30 a Q9g630 q Q9zd89 r
ggrobaci keropyn kerop	brucella ab brucella me arabidopsis clostridium neurospora caenorhabdi rhodococcus schizosacch trypanosoma neisseria m thermoplasm caenorhabdi arabidopsis mus musculu gallus gall rickettsia
um p  asc  asc  asc  asc  asc  asc  asc  as	ab a me psis film fra adi odi och
99999999999999999999999999999999999999	
000000000000000000000000000000000000000	
444 450 450 450 450 460 460 460 460 460 460 460 460 460 46	4444 4444 4444 4444 4444 4444 4444 4444 4444
261 *66011 226 255 56	
Q9HT62 Q9HT62 Q99TG43 Q86421 Q86428 Q86443 Q86444 Q86444 Q86444 Q86446 Q86447 Q86447 Q86547 Q86531 Q91SV0 Q91SV0 Q91SV0 Q91SV3 Q91SV8 Q91SV8 Q91SV0 Q91SV0 Q91SV3 Q91SV0	29YTN4 3979Z3 3V5M2 3V5M2 39XIQ7 39XIQ7 398VYV7 8RU74 8RU74 8R1D4 6C1R4 6C1R4 9224 6C1R4 928N1 199KN1 199KN1 199KN1 199KN1 198KN
\$\text{9}\text	Q9 6 9 6 9 6 9 6 9 6 9 6 9 6 9 6 9 6 9 6
Q9h62 pseudomonas Q9747 clostridium Q89568 rabies viru Q86421 rabies viru Q86421 rabies viru Q86422 rabies viru Q86423 rabies viru Q86424 rabies viru Q86426 rabies viru Q86426 rabies viru Q86427 rabies viru Q86427 rabies viru Q81827 rabies viru Q91827 rabies viru Q91828 rabies viru Q91828 rabies viru Q91829 rabies viru Q91829 rabies viru Q91820 caenorhabdi Q66534 european ba Q86635 european ba Q86635 european ba Q86635 european ba Q86636 rabies viru Q81827 clostridium Q81253 streptomyce Q97755 sulfolobus Q97262 clostridium Q91253 streptomyce Q97761 clostridium Q91253 streptomyce Q97761 clostridium Q91253 caenorhabdi Q17463 caenorhabdi	Q9ytn4 ateline her Q97523 thermoplasm Q9v5m2 drosophila Q9viq7 arabidopsis Q94ai3 arabidopsis Q8vyv7 arabidopsis Q8vyv7 arabidopsis Q8v1d4 flatimula e Q9c1r4 lentimula e Q9c1r4 lentimula e Q9c1r4 lentimula e Q9km1 mus musculu Q9c1r4 opradyrhizob Q96vv12 lentimula e Q99kn1 mus musculu Q8ufe7 agrobacteri Q8w702 cyanophage Q98a08 rhizobium 1 Q9ahr9 acetogenium

668 668 668 668 668 668 668 668 668 668	675 675 677 678
	, o, o, o, o, o,
0 N N N N N N N N N N N N N N N N N N N	
34444 3444 3444 3444 3444 3444 3444 34	340 340 341 341 321
55 7 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Q9AUTY Q9AUTY Q9AUTY Q9YU192 Q9YU194 Q9YU196 Q9YY66 Q68543 Q9PVV1 Q9EPV1 Q9EPV1 Q9EPT1 Q9EPT1 Q9EPT1 Q9UZ55 Q9EPT1 Q9UZ55 Q9UZ57 Q9UZ51 Q9UZ51 Q9EPT1	Q9AUM5 QBUJT5 Q9AGYB Q97B60 Q9XTB6
Q9ation Q9atio	
pyrococcus caniobacter caenorhabdi caenorhabdi caenorhabdi caenorhabdi caenorhabdi caenorhabdi caenorhabdi loryza sativ gbyrococcus caenorhabdi lethenteron lactococcus caenorhabdi lethenteron lactococcus caenorhabdi caenor	
caulobacter caulobacter pyrococcus caenorhabdi arabidopsis sylella fas rhizobium m streptomyce caenorhabdi lethenteron lactococus indian cass thermoplasm cassidopsis arabidopsis automato yell tomato leaf sulfolobus indian mungo wigna mungo mungbean ye soybean crisa mungo indian mung indian mun	oryza sativ agrobacteri neurinibac clostridium aenorhabdi
י ע מ אר מ מ ב מ מ ב מ מ מ ב מ מ אל " אַסְּקְּיהְ הְּסְּבָּמ יִין בּיי ממ בּבָּמ י מ מ אר מי מי מ מ מ מי מ מ מ	
7555 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
370 370 370 370 370 370 371 371 371 371 371 371 371 371 371 371	3 6 5 5 4 3 6 6 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
	16 Q8 17 Q21 17 Q9 16 Q8
QNAH3 QNAH3 QNAH3 QNAH3 QNAH3 QNAH3 QNAH1	Q8YLR6 Q21115 Q9V1D0 Q8UBA5 Q8TUW5
Ognaha caenorhabdi Ognaha caenorhabdi Ognaha caulobacter Ognaha caulobacter Ognaha caulobacter Ognobe listeria mo Ognobe listeria mo Ognobe agrobacteri Ognaha rhizobium 1 Ognaha drosophila Ogropa mus musculu Ognaha drosophila Ognaha drosophila Ognaha drosophila Ognaha oryza sativ Ognaha saccharomyc Ognaha sarbidopsis Ognaha terrahymena Ognaha sarbidopsis Ognaha oryza sativ	Q8ylr6 anabaen Q21115 caenorha Q9vld0 pyrococ Q8uba5 agrobac Q8ubw5 methano
stater ria mo terricops rouge ria in mo terricops rouge ria mo terricops rouge ria mo terricops rouge ria mo ria moy cops ria mo ria moy comy comy comy comy comy comy comy	a sp odi ous ceri

\ SSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSSS	528
, , , , , , , , , , , , , , , , , , ,	n
33300000000000000000000000000000000000	287
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	
097361 0997BKB 099XBKB 099XBKB 099WH91 099WH92 099WH95 099WH95 099WH05 099WH05 099WH06 099DSE9	OF8
00236 09756 09756 09756 09756 09756 09756 098hh 0098h 0098h 0096s	10deD
	н 83
## 1 caenorhabdi ## 5 sulfolobus ## bacillus ce ## pl kaposi's sa fa kaposi's fa kaposi	
	,
·	
	,
66666666666666666666666666666666666666	0
OOOOOOOHHHHHHHHHHHHHHHHHHHHHHHHHHHHHHH	01
00000000000000000000000000000000000000	01 6 2
77777886666666666666666666666666666666	01 6 2.8
000 000 000 000 000 000 000 000 000 00	01 6 2.8 307 17
000 000 000 000 000 000 000 000 000 00	01 6 2.8 307 17
000 000 000 000 000 000 000 000 000 00	01 6 2.8 307 17
000 000 000 000 000 000 000 000 000 00	01 6 2.8 307 17
03 6 2.8 308 1 QSUILO 04 6 2.8 308 1 QSUILO 05 6 2.8 308 1 QSUILO 06 6 2.8 309 1 QSUILO 07 6 2.8 309 1 QSUILO 08 6 2.8 309 1 QSUILO 09 6 2.8 309 1 QSUILO 10 6 2.8 309 1 QSUILO 11 6 2.8 310 1 QSUILO 11 6 2.8 310 1 QSUILO 12 6 2.8 311 1 QSUILO 13 6 2.8 311 1 QSUILO 14 6 2.8 311 1 QSUILO 15 6 2.8 311 1 QSUILO 16 2.8 311 1 QSUILO 17 6 2.8 311 1 QSUILO 18 6 2.8 311 1 QSUILO 18 6 2.8 311 1 QSUILO 19 6 2.8 312 1 QSUILO 19	01 6 2.8 307 17 059053
03 6 2.8 308 1 QSUILO 04 6 2.8 308 1 QSUILO 05 6 2.8 308 1 QSUILO 06 6 2.8 309 1 QSUILO 07 6 2.8 309 1 QSUILO 08 6 2.8 309 1 QSUILO 09 6 2.8 309 1 QSUILO 10 6 2.8 309 1 QSUILO 11 6 2.8 310 1 QSUILO 11 6 2.8 310 1 QSUILO 12 6 2.8 311 1 QSUILO 13 6 2.8 311 1 QSUILO 14 6 2.8 311 1 QSUILO 15 6 2.8 311 1 QSUILO 16 2.8 311 1 QSUILO 17 6 2.8 311 1 QSUILO 18 6 2.8 311 1 QSUILO 18 6 2.8 311 1 QSUILO 19 6 2.8 312 1 QSUILO 19	01 6 2.8 307 17 059053
000 000 000 000 000 000 000 000 000 00	01 6 2.8 307 17 059053

44444444444444444444444444444444444444	© C C C C C C C C C C C C C C C C C C C	382
<b>, , , , , , , , , , , , , , , , , , , </b>	\ \ A A A A A A A A A A A A A A A A A A	o O
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	223 8 8 8 8 8 8 9 8 9 9 9 9 9 9 9 9 9 9 9	233
12 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	166267556652427662276660000000000000000000000000000	5 09
8RC92 9V172 9V0U5 9V0U5 9Y0U5 7TQA7 7TQA7 7P2 18 YA7 19 YA	Q9FR80 Q8V8729 Q90146 Q8UV7 Q9W550 Q9JUV7 Q9W550 Q241414 Q094990 Q43141 Q07447 Q9H908 Q22546 Q9H901 Q24150 Q24151 Q24150 Q24150 Q24151 Q241720 Q8R0H99 Q8R0H99 Q9FDH2	N4L9
QBrc92 them QBrc92 them Q9v172 pyroc Q9v0u5 pyroc Q9h9p7 homo s Q9fqa7 rattus Q91hB kapos Q9rya7 dein Q9rya7 dein Q92uw3 rhiz Q9wh85 kapos Q9wh86 kapos Q9wh87 kapos Q9wh90 kapos	OBFENO oryza sativ OBFENO oryza sativ OBFENO oryza sativ OBFENO populas interia mo Ogoli46 macaca mula OBBISH agrobacteri 22943 archaeoglob cyshe archaeoglob oppulus tom O24144 nicotiana tom O24144 nicotiana tom O24144 nicotiana tom O24144 nicotiana tom O24145 nicotiana tom O24450 nicotiana tom O24450 nicotiana tom O24450 nicotiana tom O24150 nicotiana tom O24151 medicago satinto O24151 nicotiana tom O24151 medicago satinto O24151 nicotiana tom O24151 nicotiana logolida ricobacte o15692 dictyosteli o25081 nypoderma logolida ricobacte o15692 fisobacterii mo44151 fisobacte o15692 fisobacterii fisobac	
	1.U.U.U.U.U.U.U.U.U.U.U.U.U.U.U.U.U.U.U	
		2.8
8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	2644 2644 2644 2644 2644 2644 2644 2644	263
116626		7
Q91GW1 Q91GW0 Q91GV9 Q91GV7 Q91GV7 Q91GV6 Q91GV6 Q91GV5 Q91GV5 Q9RPC06 Q9RPC06 Q9RPC06 Q9RPC06 Q9RPC07	Q9UYQ2 Q31162 Q31162 Q31163 Q31103 Q311103 Q311103 Q311104 Q311159 Q9111C9 Q9717K9 Q97K9 Q97K9 Q97K9 Q97K9 Q97K9 Q97K5 Q97K5 Q97X6	231163
00000000000000	\$	Q31:
ligwl kaposi's sa ligwo kaposi	Qsuyqz pyrococcus 078196 mus musculu Q31162 mus musculu Q31162 mus musculu Q31164 mus musculu Q31164 mus musculu Q31165 mus musculu Q31169 mus musculu Q31169 pseudomonas Q977k9 streptococcus Q80018 pyrococcus Q80189 pyrococcus Q90180 pyrococcus Q90180 rattus norv Q9whd0 kaposi's sa Q8wn10 clostridium Q9w3x2 drosophila Q8ve82 mus musculu Q8x27 pyrobaculum Q9fbx1 streptomyce Q13670 homo sapien Q9yn26 leishmania Q9yn26 suterptomyce Q13670 homo sapien Q9yn26 suterptomyce Q13670 homo sapien Q9yn26 suterptomyce Q13670 homo sapien Q9yn26 suterptomyce Q9yn26 suterptomyce Q9yn36 suterptomyce Q9yn36 suterptomyce Q9yn36 synechocyst Q9yn376 synechocyst Q9yn376 synechocyst Q9yn376 synechocyst Q9yn376 synechocyst Q9yn376 synechocyst Q9yn377 synechocyst Q9y	163 mus musculu

30000000000000000000000000000000000000	720
ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ ወ	ת
1533 1533 1533 1533 1533 1533 1533 1533	י י
QBV264 QBV254 QBV254 QBV255 QBV256 QBV256 QBV276 QB	7007366
000088008808888888888888888888888888888	5
08v264 kaposi's sa 08v267 kaposi's sa 08v267 kaposi's sa 08v257 kaposi's sa 08v254 kaposi's sa 08v254 kaposi's sa 08v253 kaposi's sa 08v254 kaposi's sa 08v256 kaposi's sa 08v257 kaposi's sa 08v257 kaposi's sa 08v258 kaposi's sa 08v259 kaposi's sa 09v249 karabidopsis 09v249 pyrococcus 09v209 karabidopsis 09v209 karabidopsis 09v209 karabidopsis 09v209 karabidopsis 09v209 karabidopsis 09v209 karabidopsis 09v209 microbacteri 09v209 karabidopsis 09v209 microbacilla 09v209v20 microbacilla 09v200 microbacilla	מיייטריו ו
kaposi', kap	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
s sa sa s sa s sa s sa s sa s sa s sa	3
33111333113333333333333333333333333333	-
ν Ο Η Ο Μ Φ ΤΟ ΓΟ ΘΟ Ο Ι Ο ΜΑ ΤΟ ΓΟ ΘΟ Ο Ι Α ΙΑ ΕΝΑΙΑ ΓΟ ΘΟ Ο Ι Ο ΜΑΙΝΑΓΟ ΘΟ Ι Ο ΜΑΙΝΑΓΟ ΕΘΌ ΕΙ Ι΄ Μ΄ ΙΝ ΙΝ ΙΕ ΕΘΌ ΕΙ ΕΘΌ	>
, , , , , , , , , , , , , , , , , , ,	ħ
1198 1198 1198 1198 1198 1198 1198 1198	100
	_
QBUPFF QB	15,000
QGUIDED QGUIDE QGUIDED	בספוים?
human horrell salmo borrell fusorill bacill arabil hegat histo borrell sarabil human human mus	משויל
Quipge human immun Quipfe quipfe h	rimm.

991 991 992 993 994 995 995 995 995 995 995 995 995 995
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
624 6620 6620 6620 6620 6620 6620 6620 6
4 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 1 2 6 6 6 6
Q9M9M2 Q9M9M2 Q9FQ61
Opmpm2 arabidopsis Opf61 brassica ol Opf61 plasmodium Opf7318 plasmodium Opf756 home sapien Opf770 lieteria mo Opf770 musca domes Opf770 lieteria mo Opf770 musca domes Opf770 musca domes Opf770 musca domes Opf770 musca domes Opf770 mus musculu Opf770 lieteria sp Opf770 mus musculu Opf770 plasmodium Opf770 plasmodium Opf770 mus musculu Opf770 mus musculu Opf770 plasmodium Opf770 mus musculu Opf770 mus musculu Opf770 plasmodium Opf770 mus musculu Opf770 mus musculu Opf770 mus musculu Opf770 musculuus Opf770 musculum Opf770 musculum Opf770 musca Opf770 musca Opf770 musculum Opf770 musca Opf770 musc
9m2 arabidopsis 436 arabidopsis 461 brassica of 41 plasmodium 18 plasmodium 56 homo sapien 570 listeria mo d2 musca domes was haemonchus ea4 arabidopsis ea4 arabidopsis ea5 mus musculu 41 arabidopsis ea6 arabidopsis ea7 mus musculu 10 thermotoga off mus musculu 11 homo sapien 77 emericella 20 gallus gall 21 drosophila 20 gallus gall 26 drosophila 27 mus musculu 21 homo sapien 28 caenorhabdi 29 treptococc 21 drosophila 20 drosophila 30 plasmodium 31 drosophila 30 plasmodium 31 drosophila 32 retama raet 34 retama raet 36 plasmodium 36 lineus sp. 47 mus musculu 48 mus musculu 47 mus musculu 48 mus musculu 47 mus musculu 48 mus musculu 49 platichthys 51 listeria in 70 platichthys 52 synechocyst 531 listeria in 632 listeria in 633 listerial in 633 listerial in 633 listerial in 633 listerial in 634 thermoanaer 637 hepatitis g 638 synechocyst 638 synechocyst 639 bordetella 6397 bordetella
arabidopsis clostridium arabidopsis librassica ol plasmodium plasmodium plasmodium plasmodium plasmodium plasmodium plasmodium plasmodium plasmodium nomo sapien listeria mo musca domes haemonchus arabidopsis ruus musculu homo sapien emericella gallus gallus gallus gallus gallus gallus gallus gallus carophila lineus sp caenorhabdi caenorhabdi raterococc drosophila plasmodium drcsophila lineus musculu homo sapien eschizosacch mytilus edu mytilus edu platichthys streptococc scaulobacter schizosacch mytilus edu platichthys listeria in limelilotus o genista tin thermoanaer listeria in listeria in limelilotus o corynebacte listeria in
163 164 165 166 167 168 169 170 171 172 173 174 175 189 189 189 189 189 189 189 189 189 189
<b>あめめめめめめめのののののののののののののののののののののののののののののの</b>
11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100 11100
$\begin{smallmatrix} 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 & 1 $
Q26771 Q28MM2 Q28MM2 O5318 Q8V2G7 Q9NV2G7 Q9NV2G7 Q9NV2G7 Q9NV2G7 Q9NV2G7 Q9TCU3 Q9TCU3 Q9TCU3 Q9TCU3 Q9TCU3 Q9TCU3 Q9THX8 Q9THX8 Q9THX8 Q9THX8 Q9THX8 Q9THX9 Q9TCU3 Q9TCU
Q26771 Q98mi Q98mi Q98mi Q98mi Q98mi Q98mi Q87mi Q99mi Q9mi Q
Q26771 trypanosoma Q98ma2 rhizobium 1 053492 mycobacteri 050328 escherichia Q8v2g7 onion yello Q9m23 trypanosoma Q8z3x5 salmonella Q97cu3 thermoplasma Q31186 mus musculu Q9h246 homo sapien Q9ym88 staphylococ Q8ri44 fusobacteri Q9hux0 pseudomonas Q97hs8 clostridium Q9plc0 lostridium Q9plc0 clostridium Q9plc0 lostridium Q9plc0 lostridium Q9plc0 clostridium Q9plc0 campylobacteri Q9m42 escherichia Q91h12 kaposi's sa Q8rhz6 fusobacteri Q30u64 carsonella Q30u65 pleurotus c Q91ih3 kaposi's sa Q8x267 paramphisto Q8x267 saccoccus Q8x267 saccoccus Q8x267 saccoccus Q8x267 kaposi's sa Q8x268 kaposi's sa Q8x266 kaposi's sa Q8x266 kaposi's sa Q8x266 kaposi's sa Q8x266 kaposi's sa

욧

9

```
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Post-processing: Listing first 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8ize
                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BB BB
                                                                                                                                                                                                                                                                                                                      Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               of hits
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein search, using sw
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      length: 0
length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2
218
1 AEVTASCTKRVESY
                                                                                                                                                                                                                                                                                                                    Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SPTREMBL_21:*
1: sp_archea:*
2: sp_bacteria:*
3: sp_tungi:*
4: sp_human:*
5: sp_invertebrate:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OLIGO
Gapop 60.0 ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   671580 seqs, 206047115 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      April
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEVTASCTKRVESYNYLVDY.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sp_organelle:*
sp_phage:*
sp_plant:*
sp_rodent:*
sp_virus:*
sp_verrebrate:*
sp_unclassified:*
sp_rvirus:*
sp_rvirus:*
sp_rvirus:*
sp_rvirus:*
sp_rvirus:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sp_mhc:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sp_mammal:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           satisfying chosen
                                                                                                                                                                                                                                                                                                                    Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   _archeap:*
     210
120
120
120
120
120
140
140
157
159
163
175
177
178
178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2003, 14:39:23 ; Search time 85 Seconds
(without alignments)
528.450 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gapext 60.0
                                                                                                                                                                                                                                                                                                                      몂
   Q45178
Q476178
Q476179
Q8RVM9
Q8RVM9
Q9RVM7
Q9RYM7
Q9R7B0
Q9R7B0
Q9R7B4
                                                                                                                                                                                                                                                                                                                      Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      summaries
                                                                                                                                                                                                                                                                                                                                                                           SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .QEQILVTEEVVVLRGVNFAF 218
Q45178 borrelia ga
Q47616 escherichia
Q87vm9 malus domes
Q8rvm9 malus domes
Q8rvm7 malus domes
Q9rvm7 malus domes
Q9rb27 arabidopsis
O15401 homo sapien
Q9r7b0 borrelia bu
Q9r7b4 borrelia bu
Q9r7b4 borrelia bu
Q9r7b5 borrelia bu
Q9r7b6 borrelia bu
Q9r7b7 borrelia bu
Q9r7b7 borrelia bu
Q9r6h7 borrelia bu
Q9r7b2 borrelia bu
Q9r7b2 borrelia bu
Q9r7b2 borrelia bu
                                                                                                                                                                                                                                                                                                                      Description
       2226
                                                          510 516 516 62
                                                                                                                                                                                                                                                                                                                    16
16
16
16
16
                                                                                                                                                                                                                                                                                                                                                                                                                                  16
116
117
117
117
118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              16
   | Q9D847
| Q9UHL1
| Q9UHL1
| Q8TBDD7
| Q9BTH1
| Q9BTH1
| Q9BTH1
| Q9BTH1
| Q9BTH1
| Q9BTH1
| Q9FL74
| Q9FL75
| 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q9PC51
Q9RQR9
Q93Q98
Q932W2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Q8Y1B5
Q44983
Q44984
Q44984
O50622
Q08141
Q45173
Q9KIK3
Q9KIK6
Q45647
Q45647
Q49580
Q49580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q9RR53
031115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P70818 borrelia bu
P94243 borrelia bu
Q983p3 borrelia bu
Q9r751 borrelia ga
Q9r751 borrelia ga
Q9r516 borrelia ga
Q94597 borrelia ga
Q44997 borrelia bu
Q937g8 borrelia bu
Q937g8 borrelia bu
Q937g8 borrelia bu
Q937g8 borrelia ga
Q44983 borrelia ga
Q44983 borrelia ga
Q44983 borrelia ga
Q4587 borrelia ga
Q50622 borrelia ga
Q40844 borrelia ga
Q50622 borrelia ga
Q50622 borrelia ga
Q40844 borrelia ga
Q50622 borrelia ga
Q4587 borrelia ga
Q9kim6 borrelia ga
Q9kim6 borrelia ga
Q9kim6 borrelia ga
Q45647 borrelia ga
Q4580 borrelia ga
Q4580 borrelia ga
Q49580 borrelia ga
Q49580 borrelia ga
Q49580 borrelia ga
Q49580 borrelia ga
                                                     Q9a925 caulobacter
Q9x90 streptomyce
Q9x70 streptomyce
Q9x761 arabidopsis
Q9s761 arabidopsis
Q9s765 thermoanaer
Q8x965 thermoanaer
Q8x965 thermoanaer
Q8x965 thermoanaer
Q8x965 thermoanaer
Q8x965 thermoanaer
Q8x961191 myxococcus
Q9x112 bacteriopha
Q9x12 bacteriopha
Q9x16 belicobacte
Q9x162 helicobacte
Q9x162 helicobacte
Q9x162 helicobacte
Q9x163 mytilus edu
Q8x163 mytilus edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Q9db47 mus musculu Q92v41 rhizobium m Q9uhli homo sapien Q75586 homo sapien Q8rdd7 thermoanaer Q9s2il streptomyce Q9s2il streptomyce Q9uzy6 pyrococcus Q9kca4 bacillus hacillus qualitus pseudomonas Q8f174 arabidopsis Q9zfp2 enterococcu Q9i0us pseudomonas Q8vews mus musculu Q3wu5 gossprium h Q9tls2 cyanidium c Q9pzl streptomyce Q8x7z9 escherichia Q8x7z9 escherichia
     Q98118
Q94C51
Q9ft74
   9 plasmodium
18 arabidopsis
51 arabidopsis
74 arabidopsis
```

Minimum Maximum

Word

Result No.

Run 3

```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                        Result
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Minimum DB
Maximum DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Word size
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9
     score
                                                                                                                                                                                                                                                                                                                                                                                                                                        Score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     seq length: 0
seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No. is the number of greater than or equal s derived by analysis
      of hits
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein search, using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2
218
1 AEVTASCTKRVESY
                                                                                                                                                                                                                                                                                                                                                                                                                                       Query
Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OLIGO
Gapop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      April
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              112892 segs,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Listing first 1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SwissProt_40:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AEVTASCTKRVESYNYLVDY....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Copyright
                                                   satisfying chosen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                        Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    analysis of the total
  2003, 14:33:43 ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 equal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                       DB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gapext 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              41476328 residues
OSC1 BORBU
HIS1 PSEAE
ABC ECOLI
Y4TL RHISN
PGK SYNYA
VNS1 BTVJA
VNS1 BTVJA
YABJ RHISN
ESTJ MANSE
ESTJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  results predicted by chance to have a l to the score of the result being printed, of the total score distribution.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mode1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Search time 25 Seconds (without alignments) 361.674 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .QEQILVTEEVVVLRGVNFAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             112892
P12709
P12709
P75812
P185377
P185377
P18504
Q96740
P266740
P266740
P266740
P26740
P26740
P26740
P26740
P267162
P34162
Q96169
P40102
P40
                                                                                                                                                                                                                                                                                                                     P55666
Q8r965
P74421
O26708
P33471
                                                                                                                                                                                                                                                                                                                                                                                                                                     Description
methanococc
streptococc
caenorhabdi
lupinus lut
lupinus lut
fusobacteri
                                                                                    campylobact
bacillus su
sescherichia
cyanidium c
saccharomyc
haemophilus
xenopus lae
                                                                                                                                                                          aquifex aeo
oryctolagus
staphylococ
dictyosteli
                                                                                                                                                                                                                                                                f rhizobium s
thermoanaer
synechocyst
methanobact
bluetongue
bluetongue
bluetongue
saccharomyc
secherichia
                                                                                                                                                                                                                              solanum tub
sulfolobus
                                                                                                                                                                                                                                                                                                                                                                                   pseudomonas
escherichia
                                                                                                                                                                                                                                                                                                                                                                                                            borrelia bu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218
                                                                                                                                                                                                                                        tub
 LBC2 CCYTSC
CAMT ECCENTS
CAMT ECCENTS
CAMT ECCENTS
GPB1 YEAST
RS2 HALNI
YES2 MYCTU
TPIS BACSU
HB21 MOUSE
HB22 MOUSE
HB21 MOUSE
HB21 MOUSE
HB21 MOUSE
CCE SYNP2
OMPZ CHLPN
PANB PYRAB
PANB PYRAB
PANB PYRAB
PANB PYRAB
PANB THAA
RY1 RAT
ARY1 RAT
ARY1 RAT
ACCA HELPJ
ACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FGF4 MOUSE
INVE CHICK
BCHJ RHOSH
END3 BUCALI
END3 BUCALI
MERE STARU
MERE STARU
MERE BACSRR
Y409 MYCPN
BASP HUMAN
LEC VICFA
Y0A5 BACSU
CAMT VITUI
FRUB HELPY
FRUB HELPY
FRUB HELPY
FRUB HELPY
FRUB HELPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YBEY HAEIN
RS5 BUCAK
IL10 PIG
REGA_RHOSH
P711335
Q2291553
Q2291553
Q2291553
Q2291553
Q2291553
Q2291553
Q2291553
Q2291553
Q2291566663
Q2391573
Q3391573
                                                                                    g fragaria an a psychrobact a psychrobact an eisseria g haemophilus bacillus su methanococc bacillus st rattus norv decinococcus
                                                                                                                                                                                                                                                                                                                                             2 mesocricetu
7 rattus norv
8 rattus norv
9 cladrastis
3 escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                             4 eucalyptus
7 saccharomyc
7 saccharomyc
7 saccharomyc
8 halobacteri
8 mycobacteri
8 mycobacteri
8 mycobacteri
8 mycobacteri
9 mycobacch
10 mus musculu
10 mus musculu
11 rattus norv
12 mus musculu
12 mus musculu
13 mus musculu
14 rattus norv
15 mus musculu
16 mus musculu
17 mus musculu
18 mus musculu
19 mus musculu
19 mus musculu
19 mus musculu
19 mus musculu
10 mus musculu
10 mus musculu
11 mus musculu
12 mus musculu
13 musculu
14 mus musculu
15 mus musculu
16 mus musculu
17 synechococ
16 chlamydia p
18 pyrobaculum
18 methanococc
arabidopsis
chlamydia t
escherichia
rhodobacter
                                                                                                                                                                                                                helicobacte
helicobacte
                                                                                                                                                                                                                                                                                            saccharomyc escherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  vicia faba
bacillus su
vitis vinif
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  buchnera ap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               populus tre
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gallus gall
rhodobacter
                                                                                                                                                                                                                                          micrococcus
rattus norv
                                                                                                                                                                                                                                                                   mycoplasma
mycobacteri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sus scrota
rhodobacter
                                                  trypanosoma
methanococc
                                                                          saccharomyc
                                                                                                                                                                                                                                                                                                                     sarcophaga
bacillus s
                                                                                                                                                                                                                                                                                                                                                                                                                       pyrococcus
pyrococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         helicobacte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    mycoplasma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               staphylococ
bacillus sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        buchnera ap
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                            pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       helicobacte
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sapie
a faba
```

: 172 172 173 174 176 177 178	109 1110 1110 1111 1111 1111 1111 1111	107
, , , , , , , , , , , , , , , , , , ,		Ð
	44444444444444444444444444444444444444	344 1
NTRX AZOCA EMBB PICGL EMBB PICGL PGKH_CHLRE USP MANSE PLSB CARTI SMA5 BRARE SMA1 HUMAN SMA1 HUMAN SMA5_HUMAN	1 LICH_BERGS 14 1 LICH_BERGS 14 1 TEPE_SULSO 15 1 TEPE_SULSO 16 1 TEPE_SULSO 16 1 DEL_STAM 16 1 LEUS_YEAST 17 1 LEUS_YEAST 17 1 LEUS_YEAST 17 1 LEUS_YEAST 18 1 LEUL_PYRHO 19	LIC1 BURCE
Q40449 ascrhizbiu Q40463 picea glauc P41758 chlamydomon P54779 manduca sex Q42713 carthamus t Q9w7e7 brachydanio Q15797 homo sapien P70340 mus musculu Q99717 homo sapien	p35276 pseudomonas p25276 pseudomonas p28174 archaeoglob p50384 sulfolobus p73950 synechocyst Q97156 clostridium Q98mc4 rhizobium 1 Q998h4 staphylococ p38702 saccharomyc p27259 tomato yell p14982 cassava lat p14972 cassava lat p14972 cassava lat p19982 pasteurella p72241 providencia Q99998 streptococc p50525 schizosacch Q54899 streptococc p50525 schizosacch Q54899 streptococc p50525 schizosacch Q54899 streptococc p50525 schizosacch Q54899 streptococc p50525 schizosacch Q5489 streptococc Q94618 bacillus su p72299 rhizobium m Q591259 prizobacteri p17557 bacillus su p11286 xenopus lae p53344 caulobacteri p17557 bacillus su p55672 yersinia pe p54482 bacillus su p55672 yersinia pe p54482 bacillus su p51286 xenopus lae p29978 anabaena sp p53334 saccharomyc p43351 xenopus lae p29978 anabaena sp p53334 saccharomyc p43351 xenopus lae p29978 anabaena sp p633350 mycobacteri p40924 bacillus su Q59072 homo sapien Q59072 homo sapien Q59073 homo sapien Q33078 schizosacch p19924 mus musculu Q46254 clostridium Q46254 clostridium Q46254 homo sapien p19924 mus musculu P39245 saccharomyc p4355 saccharomyc p4355 saccharomyc p4355 saccharomyc p50431 mycobacteri p50434 homo sapien p19924 mus musculu P346245 streptomyce p43555 saccharomyc p4355 saccharomyc p4355 saccharomyc p4355 saccharomyc p43635 saccharomyc p436463 mus musculu p31026 corynebacteri Q64163 mus musculu p31026 corynebacteri	P22089 burkholderi
222222222 2222222 2554444 2109987	1181 1182 1183 1184 1185 1186 1196 1196 1196 1196 1196 1196 1196	180
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
	. கை	8
	$\begin{array}{c} 1 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\ 6 \\$	
YF48 MYCTU WHIT CERCA APB2 MOUSE CA02 RABIT ACSI KLULA CSGI DROME YYCA BACSU WHIT DROME YUXG_BACSU YUXG_BACSU		SMA5 MOUSE
Q10778 mycobacteri Q10778 mycobacteri Q17320 ceratitis c P98084 mus musculu O02767 o acyl-coen O60011 kluyveromyc O9w032 drosophila P37483 bacillus su P10090 drosophila P40747 bacillus su	P971V3 rattus norv P978B rattus norv Q951V8 brachydanio P39622 bacillus su Q956V4 brachydanio P2622 bacillus su P268V6 arabidopsis P228V6 archidopsis P228V6 archidopsis P2739 homo sapien P30101 escherichia Q940310 rassica na P40910 saccharomyc Q9jig8 mus musculu Q143842 haemophilus Q9mb73 citrus uns Q9mb73 citrus uns Q9mb73 citrus uns Q9mb74 rhizobium m Q9mb74 citrus uns Q9mb73 citrus uns Q9mb73 deinococcus P94377 bacillus su Q10428 schizosacch P07131 bluetongue P35933 bluetongue P35933 bluetongue P35933 bluetongue P35933 bluetongue P35934 bluetongue P35935 bluetongue P35935 bluetongue P359360 pseudomonas Q94661 bacillus ha Q99126 camorhabdi Q92396 pseudomonas Q940401 saccharomyc Q92339 schizosacch P2590 pseudomonas Q940401 pseudomonas	P97454 mus musculu

314 316 317 319 319 320 320 321 322 323	3000 3000 3000 3000 3000 3000 3000 300	20222222222222222222222222222222222222	2275 2275 2276 2276 2277 2280 2280 2280 2885 2885	2721098876655433
<b>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</b>	n	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	n n n n n n n n n n n n n n n	<b>ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ ភ </b>
				695 734 745 745 746 746 745 746 746 746 746 746 746 746 746 746 746
RTW4 HUMAN RTW4 HUMAN YK76 YEAST PTE-HUMAN DP3A SYNY3 CA21 CHICK VCAP HSVSA CA21 MOUSE CA21 MOUSE DP03 UREPA RPDD ODOSI DP0A DROME DF0A DROME DF03 SYNY3	SYA BOWNO SYA BOWNO SACE STRSL PCKI_SCHPO Y741_CHLMU BGAL_BACME SBCC_LACLA CTR9_YEAST POL_OMVVS A3B1_HUMAN RPOB_THEAQ EXSC_HAEIN ITA1_DROME ABA2_MOUSE NIEL_BRONE	SYA SULTO CALE BOYIN MAL7 MYCTU ITH4 PIG N107 HUMAN N107 RAT CALC NOTVI ITH4 HUMAN ODOL BACSU AGAB VIBS7 AMPN PIG AMPN FRABIT	GUN3 BACS4 NFH RAT APBI HUMAN APBI RAT GYRA UREPA NFM RAT PSĀ AERPE PSĀ AERPE CADF XENLA APCE PORPU SUHW DROAN STUZ YEAST LOLL DROME ECIC BONTN	PID1 BOVIN TKT FICST ACS1 YEAST GFA1 YEAST GFA1 YEAST VTER HSVEB YO13 BPL2 PEC1 FIG ENP RICPR FEPA ECOLI APB2 HUMAN APB2 RAT CO2 HUMAN PID1 RUMAN PID1 RUM
Q53046 rhodospiril Q9nqc3 homo sapien P36168 saccharomyc Q12913 homo sapien P74750 synechocyst P02467 gailus gail Q0099 herpesvirus Q01149 mus musculu Q9pqb4 ureaplasma P49468 odontella s P26019 drosophila P55038 synechocyst	P1314 HOMO Beplein P21894 bombyx mori P35242 streptococc P36582 schizosacch O9pjt6 chlamydia m O52847 bacillus me O9c247 bacillus me O9c20 lactococcus P89105 saccharomyc P16901 ovine lenti O00203 homo sapien O9kwu7 thermus aqu P44945 haemophilus O24247 drosophila P98200 mus musculu O52046 valonicativit	bos: to mycob mycob som som som som notop h into bacill vibri such som	P19570 bacillus sp P16884 rattus norv Q02410 homo sapien Q32430 rattus norv Q9pr63 ureaplasma P12839 rattus norv Q9yec5 aeropyrum p P08553 mus musculu P33148 xenopus lae P51263 porphyra pu Q08875 drosophila P46675 saccharomyc P42283 drosophila	P10895 bos taurus P34736 pichia stip Q01574 saccharomyc P14472 saccharomyc P28969 equine herp P42548 bacteriopha Q95242 sus scrofa Q95243 rickettsia Q95243 rickettsia Q95825 escherichia Q95825 escherichia Q9581 rattus norv P06681 homc sapien P10688 rattus norv P10688 rattus norv P21180 mus musculu P42491 african swi P26685 african swi P26685 african swi P26685 african swi P26685 african swi P26686 african swi P26686 african swi P27591 drosophila P30561 mus musculu O77788 bos taurus
387 389 390 391 398 398 398	374 375 376 377 379 379 380 381 382 383 384 386	362 362 363 364 367 369 370 372	347 348 350 351 352 355 355 356 356 357	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
ហហហហហហហហហហហ	ាហេសហហហហហហហហហហ	ាហេលបហេហេហេហេហេហេហេហេហេហ	ทเกเกเกเกเกเกเกเกเกเก	 თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ თ
77 78 80 81 81 81 84 86 87	77 77 77 77 77 77 77 77 77 77	55 55 55 55 55 55 55 55 55 55 55 55 55	33 33 33 49 12 12 12 13 13 14 14 13 14 14 13 14 13 14 13 14 14 13 14 14 14 14 14 14 14 14 14 14 14 14 14	1586 1587 1634 1720 1826 1972 1972 1972 2109 2250 2301 2303 2303 2318 2688 2688 2717 2834
		•		1 SN22 HUMAN 1 SUR2_CAEEL 1 SUR3_CAEEL 1 PTSH CHLVU 1 UVRA_CHLVU 1 UVRA_CHLVN 1 MYHB HUMAN 1 MYHB HUMAN 1 MYHB RABIT 1 MYHB RABIT 1 POLG_TMEVD 1 POL
06478 aquitex aeo P17307 bacteriopha P07124 anabaena sp 077791 oryctolagus P09297 varicella z Q50626 mycobacteri P04299 vaccinia vi O97661 sus scrofa Q9t1u0 bacteriopha P10435 bacteriopha P145611 mycoplasma P45611 mycoplasma P45612 schizosacch	P5847 P0904 P8065 P50271 P50271 Q9pr8 Q9x1q Q9x1q Q9ex0 Q9ex0 P1606 P1606	P81551 P82971 Q9y066 P52970 Q99896 Q99896 P13321 P13321 P13321 P13321 P13321	Q9ny 0882 Q0331 P2031 P2086 P2086 P2911 P8110 Q322 P812 P812 P812	P51531 Q10669 Q00750 P563699 Q9z985 P35749 Q02588 P07898 P07898 P07899 P13899 P13899 P13899 P13899 P13899 P13395 P26347 P13395 Q03172 P15822 P15822 P15822 P15822 P15822

467 468 470 471	4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	461 462	445 98	456 457	4 4 5 5 5 4	444 552 321	450 450	448	446	444	441 442	439 440	437	436	4433 1433	431 432	430	427 428	425	424	422	420	418	416 417	414 415	413	411 412	410	408	406	404	402 403	399 400 401	
ហហហហហ	ហហហហ	ហេហប	າຫຫ	ரு ரு	տտ	ហហប	n ហ ប	ហេហ	ហេប	ហេប	ហេហ	ហហ	ທ່າ	ហេប	ით თ	ហហ	ຫ ຫ	າທຸທ	ហហ	υiυ	n Un U	יטו	יטת	лo	տ տ	ı vı (	ហហ	տ տ	o o o	лопк	n Un (	տտ	ហហហ	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																																		
112 1																																		
OL11 MOUSE OL7E MOUSE RR6 FORPU THL CLODI HYPA RHOCA										APV1_CHICK					HG14_CHICK RL12_METJA														RL3	VE4	RS1	SY18	VG15 DSBA- R25Y	
9 1 2 1 6 d	Q01774 drosophila P07189 drosophila Q45972 caulobacter P21193 azospirillu	esc	Q05527 erwinia chr P01694 cryctolagus	P02539 ovis aries P02539 ovis aries Q46919 escherichia	P07282 saccharomyc	P36539 escherichia P36539 escherichia P02618 cyprinus ca	P51408 trypanosia		rat		Q9a5s0 caulobacter P53967 saccharomyc	Q01347 human herpe P35754 homo sapien	P02909 staphylococ P26426 streptococc	Q980w2 sulfolobus	P12274 gallus gall P54048 methanococc	P33465 feline ente P19742 feline infe	29pps1 ureaplasma	haemophilu	porphyra p	aquifex ae	mus muscu	bac	homo sapi	Q34948 lumbricus t P79342 bos taurus			P10497 rhizobium l P82103 mytilus gal		ans myc.	human	Q9cfb2 lactococcus	h sı	Q9t1x4 bacteriopha P13320 bacteriopha P79009 schizosacch	
			<del></del>									•••					·						•							-				
541 542 543	538 539	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	532 532	529 530	527 528	525 526	л 5 2 3 2 3 4 4	521	519	517	515	512 513	511	509	507	504	503	501	499	497	495	493	491	489 490	488	486	484 485	482	481	479	477 478	475 476	472 473 474	
ហហហហហ	տտտտ	ហេហប	ហហ	ហហៈ	ຫ ຫ	ហហប	лUnu	ոտ	ហេប	ហេប	ហហ	ທທ	ெரு	ហេប	າທຸທ	ហហ	υo	יטיטי	ហេប	ເທັບ	חטונ	л из	лu	տ տ	ហប	יטי	ហេហ	ហប	יטינ	л (л	տ տ	ຫ ຫ	ហហហ	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0																					i	•		ν ν ω ω						•			222 333	
128 128 128 128																																	113 1 113 1 114 1	
1 Y14D BPT4 1 Y14D BPT6 1 Y280 METJA 1 Y532 BUCAI 1 Y612 ARCFU	RK12 RL7 SY28		1 PFD4 AVEFA 1 PFD6 CAEEL												RTI	<u>.</u>	GLHA_MESA	GLHA MA	GLHA		GLHA CANFA		YO3	MGSI	ACPS		HV58	CH15	VAPZ_E	PT22	FI	Y118	R R B	
P39507 bacteriopha Q38169 bacteriopha Q57728 methanococc P57598 buchnera ap O29643 archaeoglob	bor cat	Q9wxm8 thermotoga Q9ju49 neisseria n	Q9m4c4 avena fatu P52554 caenorhabd	zea mays comamona	084573 chlamydia P02856 pisum sati	spinacia caenorhab	P46051 anabaena va	046912 guillardia	homo sa		fusc	planta	026774 methanobac		P02/26 equus caba. P26872 marchantia	B 3	3 8	Q9erg4 m glycoprot	3 6	0 0	Od	ゴェ	ΗĐ	Q8xln2 clostridiu	P75480 mycoplasma	P05722 chlamydomo	P18529 mus musculu Q45345 bacillus pa	d'a	ba	sty rat	K O	O30118 archaeoglob O67784 aquifex aeo	sus tri ust	•

	616	614 615	613	612	610	609	608	606	605	604	602	601	600	599	598	597	300	n u	n 0	202	n U	590	589	883	587	586	585	584	583	582	581	n U	578	577	576	575	574	5/2	571	570	569	568	567	5 G G	7 O	100	562	561	560	559	ภ () ภ () ว ()	556	555	554	л U Л U Д	552	550	549	548	546 547	545	
,	J UT (	лon	5	лU	ហ	u i	лU	ຫ	<b>5</b>	o c	n u	יטי	ı vı	տ	υī	<b>U</b> 1	лι	лU	nυ	י ט	n U	יטי	ı U	ı Un	v	ហ	ហ	υı	un i	un (	un u	n U	· ഗ	v	y i	ט נ	лu	ח ט	າ <b>ບ</b> າ	v	σ	v	υ.	un (	nυ	י ני	ı Uı	ហ	ហ	u (	лu	ח טי	ហ	us (	лU	יטי	າທ	UT ·	<b>U</b> T (	лU	ו נח	
	i				٠			•	٠		•	٠	٠	٠	•			•	•	٠	•	٠	٠	•	•			•				٠	•	•	2.3	אַ נאַ ט נע				2.3	2.3	2.3	2.3	2 :	٥ <i>د</i>	٠ د د		•	•	2 :	٠	•	2.3		•	٥ د د د	ν . ω	2	2 :	ν ν υ ω	2.3	
•	145 1	лU	G (	ח ט	S	U) (	ח טו	5	UT 1	UT A		4.	4.	ω	ω	w	<b>.</b>	- د	- ۱	• -	۰,		0	0	0	9	9	9	9 (	۰ م	ه ه	0 02	ω	œ	7	7 -	10	10	0	o.	u	u	<b>U</b>	UT (	14 n	4.	4.	w	w	ωı	<i>.</i>	) N	, 1	μ,	۔ ۔	س ه	. 0	0	0 0	000	128 1	
	YPOL IBDVS	YPOL_IBDV5	SSRP_MYCPU	PSEZ ARATH	OM25_HUMAN	DUT CLOAB	DTD SALTY	DTD_SALTI	DID ECOLI	ANF RANCA	EXEC BACSO	DTD VIBCH	DTD_PASMU	PSE2_NICSY	NUSB_BUCAI	IRO9 HCMVA		SURF DIRECT		MMOB_METCA	HBAU PHKHI	GAT3_YEAST	VG07_HSVII	NUSB_STRPN	HBAD_COLLI	RISB_METTH	NUSB_SALTY	NUSB SALTI	NUSB ECOLI	LPOV MYCTII	GRA1 ORYSA	KEY / SOLIO	NUSB_YERPE	HUPG_RHOCA	MBB2 ECOLI	MALI VIBEII	IALS ARCEO	NUZM_ARTSA	MUTT_HABIN	EF1G_PIG	TVA3 HUMAN	RS6 ECOLI	RL27 PEA	RL27 ARATH	WALL CHICK	TRBC_AGRITU	NUSB_BACHD	YO14_BPHP1	VNS4 CVH22	S3AD BACSU	AGGW BOVIN	AGSW_HUMAN	RK12_CHLVU	NUSB_BACSU	AGSW VOLVO	AGSW_MOUSE	TVA1 MOUSE	SY28 MOUSE	CW36 YEAST	YN31_MYCTU	YCDK_ECOLI	
or Hisacono	P22440 avian infec	avian infe	Į,	arabidop	рo	097161 clostridium	salmonel	P58532 salmonella	escherichi	P18909 rana catesh	pacitio	vibrio ch	pasteurell	nicotiana	buchner	human cyt	FERTION OFFICE	ureaptasn	P4086/ Dacillus su	P18797 methylococc	P02006 pniynops hi	Q07928 saccharomyc	Q00133 ictalurid h	Q97sf0 streptococc	O12985 columba liv	027443 methanobact	Q8zrd3 salmonella	salmonella		myrobacter	007077 orvea sativ	solanum tu	yе	Q03006 rhodobacter	68	4. 5	4	ar	haemophi	Q29387 sus scrofa	homo sapie	escherichi	pisum sati	P51419 arabidonsis	garius gar	P54908 agrobacteri	Q9k965 bacillus ha		human coro	P49781 bacillus su	DA7718 mirconlacma	P42127 homo sapien	P56345 chlorella v	P54520 bacillus su	P79407 vulpes vulp	Q03288 mus musculu	mus muscul	mus muscul	sacchar	mycobacter	escheri	
0 90	6 6 6	687	686	6804	683	682	0 80	679	678	677	675	674	673	672	671	670	n 0	000	000	000	664	663	662	661	660	659	658	657	555	ν ή ν (	л о л о л о л о	652	651	650	649	548	640	0.45	644	643	642	641	640	639	54.	636	635	634	633	632	631	629	628	627	625	624	623	622	621	619	618	-
U	n Un U	пun	տւ	n UT	ហ	лı	າທ	ഗ	<b>σ</b> (	лu	י ני	ហ	u	ഗ	UT I	лu	nυ	ח ט	י י	, <sub>U</sub>	ı U	יטו	u	ຫ	ഗ	ហ	ហ	σ,	ט נ	nι	лŲ	יט ר	IJ	ហា៖	un (	лu	nψ	יט ר	G	ហ	Çī	ហ	<b>υ</b> 1	<b>л</b> (	n u	ı UT	S	υı	Ç	σı	n (r	ı vı	رب ر	UT (	ח טו	, vi	ທ	<b>ரு</b> (	ט נ	n un	ហ	
	ν ν. υ ω ι			•										•				•																				•	•																							
100	158	158	158	157	157	157	157	157	157	156	1 L C C	156	156	156	156	77.	ת ת ת	100	1 5	155	155	154	154	154	154	154	154	154	154	154	15.6	152	152	152	152	1 5 5	7 7 7	151	151	151	151	150	150	150	150	149	149	148	148	148	148	148	148	148	147	147	147	147	147	147	146	
T AUST WITH A	1 PGSG_HUMAN		1 FLAV BACSU	SSB	RUV	RIIVO	ISPF	HS12		SSRD CLOB	KL22 N	NUSB	BSDN	NRDL	HS11	YMY T	0000	NADG VIBO	GPZ	BCT	ВСТ	YP76	YKO		YA16		PFDA	NRDG.	NRDG.	3 5	1 HS11 LYCES	RECX	MRAS	MRAZ	MRAZ	1 MBAZ ECOS7	ANE	SH	DUT_	IPI	DUT F	1 YPSL SYNEN	SSRP		1 10	RL	RL9	YF	YEN.	Y246	AL ZA	PUIA	GCS5	FUR 7		HVNI	HVNI	GS17 XENL	GLP2	OTD STRPN	RL15	
E ZOOOO III YOMA	P10124 homo sapien	eschez	034737 bacillus	084048 chlamyo	025544 helicobacte	O9zkx3 helicol	Q9kgf7 bacill	P13853 ārabid	P35012 galdie	OByku7 clostridium	PS4033 mechan	Q9kpu5 vibrio	rick	Q97t03 streptococ	P19036 arabid	Ognhh7 xvlella fag	Collaboration of the collabora	OSEM76 VIDITO CHOI	P06228 bacter	P54230 OVIS aries	B08 t	myco	P34289 caenori	P74148 synech	O29246 archaeoglob	P74355 synech	рJ	Q91645 salmonell	OBz138 galmonella	Jequine bottota	Odypod muscuru	Q56647 v1br10	Q8zru9 salmon	Q8z9h5 galmonella	P22186 escher	Jedose tesked	B01161 7344110	P12810 tritic	Q8zjp5 yersinia pe	P57914 paster	P43792 haemop	P25908 synech	051064 borrelia	O99xi0 strept	Piyad physarum po	P44349 haemophi		3		P43972 haemophilus		P33432 triticum	O66720 aquife	P33086 yersinia pe		salmo	salm	xenop	alvee olyce	stre	bacil	

7000 7000 7000 7000 7000 7000 7000 700	699 699 699 699 700 700 700
ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ ຑ	ហហហហហហហហហហហហហ
1160 11 1160 1	
SRS4 SRS4 DNE DNE DNE DNE DPA DPA DPA DPA DPA DPA DPA DPA DPA DPA	
Oppkz4 chlamydia ma 227049 triatroma pa 227049 triatroma pa p55347 chlorella v p34563 caenorhabdi p07326 anabaena cy p80557 anabaena cy p80551 cyanochocyst cyanochocyst cyanochocyst cyanochora cy p805730 cyanophora p16571 fremyella cyanochocyst p49510 odontella cy p51199 porphyra pu cystlw2 cyanochocyst p49510 odontella cy p51199 porphyra pu cystlw2 cyanochocyst p49510 odontella cy p51199 porphyra pu cystlw2 cyanochocyst p49510 odontella cy p51194 drosophila cy p511168 mycobacteri cy p11168 mycobacteri cy p2214 drosophila cy p51241 drosoph	buchner betula betula betula betula buchner daucus todarod pseudom pseudom pseudom
7777 778 778 779 781 778 781 782 783 784 785 786 786 787 797 798 799 800 801 799 801 801 801 801 801 801 801 801 802 802 803 803 803 803 803	777777777777777777777777777777777777777
3 3 3 3 3 3 3 3 6 5 4 3 3 2 1 2 2 5 6 5 7 4 1 1 1 1 1 1 2 9 8 7 8 5 7 4 1 1 2 2 1 1 2 2 9 8 7 8 5 7 4 1 1 1 1 1 2 9 8 7 8 5 7 4 1 1 1 1 1 2 9 8 7 8 5 7 8 5 7 8 5 7 8 5 7 8 5 7 8 5 7 8 5 7 8 7 8	à W à V Œ Ũ Õ ႖ W W Å W Õ
ភាសាសាសាសាសាសាសាសាសាសាសាសាសាសាសាសាសាសាស	
11111111111111111111111111111111111111	
RBS_F RBS_F VGAM YN10_A YN11_A YN11_A YN10_A YN11_A HSLV_V US10_A PYRB_C RBS2_V VATL_Y YATL_Y YATL_Y YATL_Y YATLAN YA	HSLV PAS MEA1 HUW MTH6 DRO THIM ORY THIM PEA CD3D RAT DCD ACLA IPYR SUL YC37 POR YWJG BAC FRIL BOV MEA1 BOV
Q40004 hordeum vu po6023 bacterioph 086227 haemophilu p71901 mycobacter p57115 buchnera a commanda ophnga halobacter p57115 buchnera a commanda ophnga halobacter p26667 triticum a p03535 human rotea ophnya homo sapie copsyyl homo sapie copsyl	P49617 pasteurel Q16626 homo sapi Q9we77 drosophil Q9zp20 oryza sat P48384 pisum sat P48387 rattus no Q02103 acidianus P503108 sulfolobu P503108 sulfolobu P51191 porphyra P06629 bacilius Q46415 bos tauru Q29407 bos tauru Q39cn40 pasteurel
hordeum vul bacteriopha haemophilus mycobacteri buchnera ap chlamydia t halobacteri triticum ae human rotav homo sapien gluconobact cenothera h nicotiana t streptomyce saccharomyc sacchlus norv oncorhynchu antithammio salmonella scherichia escherichia escherichia escherichia escherichia escherichia scherichia scherichia salmonella arabidopsis sarabidopsis sarabidopsis arabidopsis arabidopsis arabidopsis arabidopsis arabidopsis arabidopsis arabidopsis sarabidopsis	pasteurella homo sapien drosophila oryza sativ gisum sativ gisum sativ rattus norv acidianus a sulfolobus porphyra pu bacillus su bos taurus bos taurus posteurella

904 905 906 908 909	891 892 893 895 896 897 898 899	877 878 879 880 881 882 882 883 884 886 886 886 886 886 886	864 864 864 866 867 877 877 877 877 877 877 877 877	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
ហហហហហហហ	ហេហហហហហហហហហហហ	ហហហហហហហហហហហហហហ		<i>,</i> 
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
196 196 197 197 197 197	0000000000000	1991 1991 1992 1993 1994		182 182 182 182 182 183 183 183 183 183 183 183 183 183 183
		NU60 TBP TBP TNR TNR Q160 G160 RAS; VMT; LEP; RNH; YLB0 FGF; IL11		1 NUSG VIBCH 1 P19RE PYREU 1 P19RE PYREU 1 R104 YEAST 1 VG45 HABIN 1 YGFB HABIN 1 YGFB HABIN 1 YGRB HABIN 1 YGRB HABIN 1 YGRB HABIN 1 CBX3 HUMAN 1 CBX3 HUMAN 1 CBX3 HOMAN 1 CBX3 HOMAN 1 CBX3 HOMSE 1 NUSG PASMU 1 LBP RENRE 1 NUSG BORBU 1 NUSG BORBU 1 NUSG BORBU 1 NUSG HABIN 1 NO20 SOYBN 1 NO20 SOYBN 1 NO20 HABIN 1 RRF STRPY 1 US10 HCMVA 1 YEAG AQUAE 1 YRKN BACSU 1 ATPD RHOBL 1 OM24 ARATH 1 PNOC MOUSE 1 YRKN BACSU 1 OM24 ARATH 1 PNOC MOUSE 1 YRKN BACSU 1 OM24 ARATH 1 PNOC MOUSE 1 YRKN BACSU 1 ATPD RHOBL 1 OM24 ARATH 1 PNOC MOUSE 1 YRKN BACSU 1 ATPD RHOBL 1 OM24 ARATH 1 PNOC MOUSE 1 YRKN BACSU 1 ATPD RHOBL 1 PNOC MOUSE 1 YRKN BACSU 1 ATPD RHOBL 1 PNOC MOUSE 1 YRKN BACSU 1 ATPD RHOBL 1 PNOC MOUSE 1 YRKN BACSU 1 ATPD RHOBL 1 PNOC MOUSE 1 YRKN BACSU 1 ATPD RHOBL
P35157 bacillus su O9jw50 neisseria m O9jx52 neisseria m O41000 pisum sativ Q40561 nicotiana t Q56461 paracoccus P43808 haemophilus P57986 pasteurella	Ogjx40 neisseria m Ogkigi neisseria m P44395 haemophilus O49157 mycobacteri O67099 aquifex aeo Oghneo halobacteri O28135 archaeoglob P97227 helicobacte Ogumso homo sapien O8xv81 ralstonia s O67768 aquifex aeo P35157 hacillus si		Q506/1 mycobacteri Q9hyc9 pseudomonas Q8ubz8 agrobacteri P22347 lactococcus P55003 tuber uncin Q44840 borrelia bu Q56253 thermococcu Q9ccr9 mycobacteri P72657 synechocyst Q9zns1 avicennia m P44830 haemophilus Q52366 pyrococcus Q9bmp0 halobacteri P45973 homo sapien Q61686 mus musculu	Q9kv35 vibrio chol p58861 pyrococcus p3323 saccharomyc p44238 haemophilus p44882 haemophilus Q96xy5 sulfolobus Q95xy5 sulfolobus Q95xy5 sulfolobus Q95xy5 sulfolobus Q95x66 pseudomonas Q13185 homo sapien p23198 mus musculu Q9ck84 pasteurella p05938 renilla ren O51355 borrelia bu p35872 thermus the p08960 glycine max p43916 haemophilus p82556 streptococc p09728 human cytom Q58330 methanococc Q57431 aquifex aeo p54441 bacillus su p05437 rhodopseudo p82805 arabidopsis Q64387 mus musculu p44923 haemophilus
975 976 977 979 979 980 981	964 965 966 967 969 970 971 972 973	950 950 950 950 950 950 950	935 937 937 940 944 944 944 944 944 944 944	910 911 911 913 914 915 916 917 918 919 920 921 921 922 923 923 924
ហហហហហហហហ	រាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហាហ	ហហហហហហហហហហហហហ	ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ ហ	
22222222 2007776666	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	C C C C C C C C C C C C C C C C C C C	2033	198 197 198 198 198 198 198 198 198 198 198 198
	RAC KAD KAD NHAI RALL RALL RALL RALL			1 YCB7 PSEDE 1 YDB6 YEAST 1 GRPE HABIN 1 GRPE HABIN 1 LEUD MYCTU 1 RECR CLOAB 1 RECR LISIN 1 VS11 ROTRA 1 Y530 METUA 1 Y53
P52021 vibrio chol O52759 pseudomonae O52759 pseudomonae Q56561 ureaplasma Q8y776 anabaena sp O65943 aquifex aeo P24208 escherichia P30752 salmonella Q9n9w8 giardia lam	Q9gpr2 dictyostell P52975 caulobacter O94655 schizosacch O66490 aquifex aeo P11448 rhodococcus P11233 homo sapien P05810 mus musculu P11234 homo sapien P36860 rattus norv P22124 discopyge o O8z697 salmonella	P28732 bacteriopha O58214 pyrococcus O28293 archaeoglob P02522 bos taurus P43320 homo sapien P26775 mus musculu P52013 caenorhabdi P30854 escherichia P35794 schizophyll O55057 streptococc P39638 bacillus su O00384 z khg/kdpg Q01151 homo sapien O11615 homo sapien	Q9mp90 homo sapien Q50412 magnetospir Q8y6z7 listeria mo Q27389 caenorhabdi Q07271 sulfolobus Q27389 cricetulus Q07271 cricetulus Q04991 cricetulus Q04995 arabidopsis P03499 influenza a Q50191 mycobacteri p32105 escherichia Q53786 rhizobium m P28891 agkistrodon p33781 escherichia P46429 manduca sex P36611 dictyosteli	

```
RESULT ON A CONTROL OF STATE O
                                                                                                                                                                                                                                                                                                                                                                                                     "Genetic heterogenity of t. protein C (ospC) and re-
Med. Microbio<sup>1</sup>
[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           983
984
985
987
988
989
990
991
992
993
1000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A. STRAIN=ATCC 35210 / MEDLINE=93268136; F Jauris-Heipke S., F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          OSC1 BORBU
Q07337;
15-DEC-1998
15-DEC-1998
16-OCT-2001
                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAINATCC 35210 / B31;
MEDILINE=93239332; PubMed=8478108;
Wilske B., Preace-Mursic V., Jauris
Schwab E., Wanner G.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BORBU
                                                                                                                                                            STRAIN-ATCC 35210 / B31;
MEDLINE=94041630; PubMed=8225587;
Padula S.J., Sampieri A., Dias F., Szczepan Padula S.J., Sampieri A., Dias F., Szczepan "Molecular characterization and expression American strain of Borrelia burgdorferi.";
Infect. Immun. 61:5097-5105(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Plasmid lp54
Bacteria; Sp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OSPC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Outer surface
 SEQUENCE FRO
                                           Pukunaga M., Hamase A., 'Gene sequence analysis "Outer surface protein C gene sequence analysis burgdorferi sensu lato isolates from Japan."; J. Clin. Microbiol. 33:2415-2420(1995).
                                                                                                   SEQUENCE FROM N.A.
STRAIN=ATCC 35210 / B31;
MEDLINE=96025162; PubMed=7494039;
                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN=ATCC 35210
                                                                                                                                                                                                                                                                                "Immunological and molecular polymorphisms of OspC, major outer surface protein of Borrelia burgdorferi Infect. Immun. 61:2182-2191(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NCBI_TaxID=139;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   OR BBB19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ហេសសហសហសហសេសស្រសស្រសស
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Spirochaetales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 37, (Rel. 37, (Rel. 40,
 35210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NNNNNNNNNNNNNNNN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              protein
                 z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0 / B31;
; PubMed=8098841;
, Fuchs R., Motz M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last sequence update)
Last annotation updat
C precursor (PC).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Created)
                                                                                                                                                                                                                                                                                                                                                                                                                      the genes coding for t
flagellin of Borrelia
182:37-50(1993).
                                                                                                                                                                                           Dias F., Szczepanski A.,
on and expression of p23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Spirochaetaceae; Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ALIGNMENTS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   spirochete)
                                                                                                                                                                                                                                                                                                                                           :
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Preac-Mursic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                              Pradel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                   for the outer surface
                                                                                                                                                                                                                                                                                                                                           Ι.,
                                                                                                                                                                                                                                                                                                                                                                                                                                     burgdorferi.";
                                                                        of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ۷.,
                                                                                                                                                                                          , Ryan R.W.; (OspC) from
                                                                          Borrelia
                                                                                                                                                                                                                                                                                                                                              Soutschek E.,
                                                                                                                                                                                                                                                                                                     .= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         P18067
P51150
P51150
P97572
P097577
P32975
P24356
P24356
P60385
P924356
Q900385
Q900385
Q900365
Q900365
Q900365
Q900366
Q900366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Schwab
                                                                                                                                                                                                                                                                                                                   immunodominant
                                                                                                                                                                                             from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       b ureaplasma
b pyrococcus
helicobacte
helicobacte
caenorhabdi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            oryctolagus
7 rattus norv
5 chlorella v
6 vaccinia vi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              pasteurella
brachydanio
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
m
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              brachydanic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         mus musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   canis
                                                                                                                                                                                           a North
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      no sapien
musculu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   musculu
```

```
SOTTT WE WERE REPORTED THE REPORT OF THE PROPERTY OF THE PROPE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 7
[1]
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
STRAIN=ATCC 15692 / PAO1;
STRAIN=ATCC 15692 / PAO1;
STRAIN=ETCC 15692 / PAO1;
Stover C.K., Pham X.-Q.T., Erwin A.L., Mizoguchi S.D., Warrener P.,
Stover C.K., Pham X.-Q.T., Erwin A.L., Kowalik D.J., Lagrou M.
Hickey M.J., Brinkman F.S.L., Hufnagle W.O., Kowalik D.J., Lagrou M.
Garber R.L., Goltry L., Tolentino E., Westbrock-Wadman S., Yuan Y.,
Garber R.L., Goltry L., Tolentino E., Kas A., Larbig K., Lim R.M.,
Brody L.L., Coulter S.N., Folger K.R., Kas A., Larbig K., Lim R.M.,
Brody L.L., Spencer D.H., Wong G.K.-S., Wu Z., Paulsen I.T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CHAIN
LIPID
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                           IT 2
PSEAE STANDARD; PRT; 213 AA.

QHU42;

15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
15-JUN-2002 (Rel. 41, Last annotation update)
Indazole glycerol phosphate synthase subunit hisH1 (EC 2.4.2.-)
synthase glutamine amidotransferase subunit) (IGP synthase subunit hisH1) (IGPS subunit hisH1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Complete
SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               burgdorferi.";
Nature 390:580-586(1997).
-!- FUNCTION: NOT KNOWN; MAJOR IMMUNODOMINANT PROTEIN.
- orecritillar LOCATION: Attached to the outer membra
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=98065943; PubMed=9403685; Fraser C.M., Casjens S., Huang W.M., Sutton G.G., Clayton Fraser C.M., White O., Ketchum K.A., Dodson R., Hickey E.K. Dougherty B., Tomb J.-F., Fleischmann R.D., Richardson D., Peterson J., Kerlavage A.R., Quackenbush J., Salzberg S., Ivan Vugt R., Palmer N., Adams M.D., Gocayne J.D., Weidman Otterback T., Watthey L., McDonald L., Artiach P., Bowman Garland S., Fujii C., Cotton M.D., Horst K., Roberts K., Hsmith H.O., Venter J.C.; "Genomic sequence of a Lyme disease spirochaete, Borrelia burgarser"."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL; X69596; CAA49306.1; --
EMBL; U01894; AAA16058.1; --
EMBL; D49497; BAA08457.1; --
EMBL; AB000792; AAC66329.1; --
TIGR; BBB19; --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through a collab between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is no modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR001800; Lipoprotein_6.
Pfam; Pf01441; Lipoprotein_6; 1.
ProDom; PD001149; Lipoprotein 6; 1.
PROSITE; PS00013; PROKAR_LIPOPROTEIN;
                                                                                                                                                                                                                                                                                       Pseudomonas.
NCBI_TaxID=287;
                                                                                                                                                                                                                                                                                                                                                                                                              HISH1 OR PA5142.
                                                                                                                                                                                                                                                                                                                                                         Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                 Pseudomonas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AKEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       membrane; Lipoprotein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19
210 #
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3.2%;
ilarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                 aeruginosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ; CAA49306.1; -.
; AAA16058.1; -.
; BAA08457.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
210
19
22340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      X
X
                                                                                                                                                                                                                                                                                                                                                         gamma subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BY SIMILARITY.
OUTER SURFACE PROTEI
N-ACYL DIGLYCERIDE (
7A4FC978F91777BF (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score 7; DB 1
Pred. No. 11;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Signal;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ; 1.
Plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3 PROTEIN C.
CERIDE (BY SIN
L777BF CRC64;
                                                                                                                                                                                                                                                                                                                                                            Pseudomonadaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C.
( SIMILARITY)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 . × .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            γģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hatch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hanson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                subunit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ם
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gwinn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lipid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Σ.
                                                                                                                                                      3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ខ្ព
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT
ABC_ECC
    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                         P30750; P77517;
01.APR-1993 (Rel. 25,
01.NCV-1997 (Rel. 35,
16-CCT-2001 (Rel. 40,
ATP-binding protein a
ABC OR B0199.
STRAIN=K12 / I
Takemoto K.,
Yamamoto Y.,
                                                                                                STRAIN=K12 / MG1655;
MEDLINE=97426617; PubMed=9278503;
Blattner F.R., Plunkett G. III, Bloch C.A., Perna N.T., Burland V Riley M., Collado-Vides J., Glasner J.D., Rode C.K., Mayhew G.F., Gregor J., Dayis N.W., Kirkpatrick H.A., Goeden M.A., Rose D.J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Complete
ACT_SITE
ACT_SITE
ACT_SITE
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00117; GATASE TYPE I; 1.
PROSITE; PS00442; GATASE TYPE I; 1.
Histidine biosynthesis; Transferase; Glutamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Reizer J., Saier M.H., Hancock R.E.W., Lory S., Olson M.V.; "Complete genome sequence of Pseudomonas aeruginosa PAO1, at opportunistic pathogen.";
                                                                    Science
                                                                                                                                                                                                                               Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Nature 406:959-964(2000)
                                                                                              Mau B.,
                                                                                                                                                                                                                                             Escherichia coli
                                          SEQUENCE FROM N.A
                                                                                                                                                                            SEQUENCE FROM N.A.
                                                                                                                                                                                                    NCBI_TaxID=562;
                                                                                                                                                                                                                     Escherichia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              InterPro; IPR000991; GATase_1.
Pfam; PF00117; GATase; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AE004927; AAG08527.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                              199
                                                                                                                                                                                                                                                                                                                                                                                                                                      179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: IGPS catalyzes the conversion of PRFAR and glutamine to IGP, AICAR and glutamate. The hisH subunit provides the glutamine amidotransferase activity that produces the ammonia necessary to hisp for the synthesis of IGP and AICAR (By similarity). CATALYTIC ACTIVITY: 5-[(5-phospho-1-deoxyribulos-1-ylamino)methylideneamino]-1-(5-phosphoribosyl)imidazole-4-carboxamide + I-glutamine = imidazole-glycerol phosphate + 5-aminoimidazol-4-carboxamide ribonucleotide + I-glutamate + H(2)O PATHMAY: Histidine biosynthesis; fifth step. SUBUNIT: Heterodimer of hisH and hisp (By similarity). SUBCELLULAR LOCATION: Cytoplasmic (By similarity). SINCELLULAR LOCATION: Type-1 GLUTAMINE AMIDOTRANSFERASE DOMAIN.
                                                                                                                                                                                                                                                                                                                                        ECOLI
                                                                   complete genome sequence nce 277:1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                GLQLLQN
                                                                                                                                                                                                                                                                                                                                                                                                           GLOLLON
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 7; Conserv
                                                                                              Shao Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  82
191
193
                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%;
llarity 100.0%;
Conservative
  Mori H.,
Inokuchi
              W3110;
Mori H
                                                                                                                                                                                                                                                                                                                                                                                                                                    185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    $
                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82
191
193
23698 þ
                                                                                                                                                                                                                                                                      . 25, Created)
. 35, Last sequence upo
. 40, Last annotation u
Murayama
H., Miki
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ¥,
                                                                                                                                                                                                                               gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score 7; Ub 1, ; Pred. No. 11; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                78
78
78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3Y SIMILARITY.
3Y SIMILARITY.
3Y SIMILARITY.
ECE247CBD0411FE8 C
                                                                               of.
;;
                                                                                                                                                                                                                               subdivision;
                                                                              Escherichia
 Kataoka
Hatada E
                                                                                                                                                                                                                                                                                                                                         343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                         ₽
 .
H
           '.<del>"</del>
                                                                               coli K-12.";
                                                                                                                                                                                                                                Enterobacteriaceae
, Yano M
Fukuda
                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 213;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     amidotransferase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
b M., Itoh
la R., Ichi
 Ichihara
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lutamine to
e glutamine
cessary to
                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5-
H(2)0.
                                                                                                                                  .<
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps
 ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                              0,
```

ঠ

```
RESULT 4
Y4TL_RHISN
SCCOSSEDER BANK
                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOTITION OF THE PROPERTY OF TH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EcoGene; EG11621; abc.
EcoGene; EG11621; abc.
InterPro; IPR003593; AAA ATPa
InterPro; IPR003439; ABC_trar
Pfam; PF000005; ABC_tran; 1.
ProDom; PD000006; ABC_transp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transport; ATP-binding; Inner membrane; Compl
NP BIND 38 45 ATP (POTENTIAL).
CONFLICT 106 106 P -> R (IN REF.
CONFLICT 165 165 D -> V (IN REF.
SEQUENCE 343 AA; 37788 MW; 2FC796C605216F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Systematic
4.0 - 6.0 mii
Submitted (F
                                    Rhizobium sp. (strain NGR:
Plasmid sym pNGR234a.
Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProDom; PD000006; ABC transportr; 1.
SMART; SM00382; AAA; 1.
PROSITE; PS00211; ABC TRANSPORTER; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; AE000129; AAC73310.1; -.
EMBL; D83536; BAA77876.1; -.
EMBL; U70214; AAB08627.1; -.
EMBL; L08626; AAC35869.1; ALT_I
HSSP; O58663; 1G6H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                         P55666;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Allikmets R., Gerrard B.C., Court D., Dean M.C.; "Cloning and organization of the abc and mdl genes of coll: relationship to eukaryotic multidrug resistance. Gene 136:231-236(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Schramm S., Duncan M., Allen E., Araujo R., Apa
Davis K., Federspiel N., Hyman R., Kalman S., F
Lashkari D., Lew H., Lin D., Namath A., Oefner
                                                                                                             Hypothetical
Y4TL
                                                                                                                                                           01-NOV-1997
01-NOV-1997
                                                                                                                                                                                                                                                       Y4TL_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    +++
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=94124004; PubMed=7904973;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mizuno T., Makino K., Nakata A., Yura T., Sampei G., Mizobuchi K
"Systematic sequencing of the Escherichia coli genome: analysis
4.0 - 6.0 min (189 987 - 281.416bp) region.";
Submitted (FEB-1996) to the EMBL/GenBank/DDBJ databases.
                     Rhizobiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                       173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=TAP90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Davis R.W
                                                                                                                                                                                                                                                                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBCELLULAR LOCATION: Inner membrane-associated (
SIMILARITY: BELONGS TO THE ABC TRANSPORTER FAMILY
CAUTION: REF.4 SEQUENCE DIFFERS FROM THAT SHOWN D
                                                                                                                                                                                                                                                                                                                                                                      GSVLVDG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FRAMESHIFT IN POSITION 200.
                                                                                                                                                                                                                                                                                                                                                                                                                       GSVLVDG
                                                                                                                                                                                                                                                       RHISN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OF 1-231
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FROM N.A.
S., Duncan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (SEP-1996)
                                                                                                                                (Rel. 35, Created)
(Rel. 35, Last sequence (Rel. 35, Last annotal 1)
1 hydrolase/peptidase 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                    179
                                                                                                                                                                                                                                                                                                                                                                         66
                     Rhizobium.
                                                                                       (strain NGR234).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         100.0%; =-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         to the
                                                                                                                                                           Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cransportr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ALT_FRAME.
                                         alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 7; DB 1; Pred. No. 18; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                       PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2FC796C605216FB3
                                           subdivision;
                                                                                                                                                                                update)
                                                                                                                                                                                                                                                       390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1
                                                                                                                                     (BC
                                                                                                                                                           update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Complete
                                                                                                                                                                                                                                                       ₽
                                                                                                                                     3.-.-.).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , Aparicio A., Ch
S., Komp C., Kurd
fner P., Roberts |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    . .
29
. .
                                           Rhizobiaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        proceome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BUG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Potential)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mizobuchi K.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Escherichia
.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kurdi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    덩
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chung E.
urdi O.,
                                         group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
STRAIN-MB4 / JCM 11007;

RESTRAIN-MB4 / JCM 11007;

RX MEDLINE-21992816; PubMed=11997336;

RA Bao Q., Tian Y., Li W., Xu Z., Xuan Z., Hu S., Dong W., Yang ...,

RA Chen Y., Xue Y., Xu Y., Lai X., Huang L., Dong X., Ma Y., Ling L.,

RA Tan H., Chen R., Wang J., Yu J., Yang H.;

RA Tan H. Chen R., Wang J., Yu J., Yang H.;

RA Genome Res. 12:689-700(2002).

CC -I- CATALYTIC ACTIVITY; AIP + 3-phospho-D-glycerate = ADP + 3-

CC phospho-D-glycercyl phosphate.

CC -I- PATHWAY: Second phase of glycolysis; second step.

CC -I- SUBUNIT: Monomer (By similarity).

CC -I- SUBCELLULAR LOCATION: Cytoplasmic (Potential).

CC -I- SUBCELLULAR LOCATION: Cytoplasmic (Potential) colli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SO NAME OF THE PROPERTY OF THE
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Duery Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PGK_THET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Freiberg C. Perret X.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       "Molecular basis of symbiosis between Rhizobium and legumes.";
Nature 387:394-401(1997).
-i-SIMILARITY: BELONGS TO THE SUPERFAMILY OF PEPTIDASES M24 WHICH
GROUPS METHIONINE AMINOPEPTIDASES (M24A/M24C), XAA-PRO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            InterPro; IPR000994; Peptidase M24.
Pfam; PF00557; Peptidase M24; T.
Hypothetical protein; Hydrolase; Plasmid
SEQUENCE 390 AA; 42773 MW; 9213FBC2E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no restructed the surpresentation of the 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            [1]
SEQUENCE FROM N.A.
MEDLINE=97305956; PubMed=9163424;
                                                                                                      This SWISS-PROT entry is copyright. It is produced through a celebrate the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        15-JUN-2002 (Rel. 41, Created)
15-JUN-2002 (Rel. 41, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
Phosphoglycerate kinase (EC 2.7.2.3).
PGK OR TTE1761.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; AE000098; AAB91865.1; -. MEROPS; M24.UNB; -.
                                entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Thermoanaerobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Thermoanaerobacter tengcongensis.
Bacteria; Firmicutes; Clostridia; Thermoanaerobacteriales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NCBI_TaxID=119072;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 162 IKSDLEI 168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: TO Y4TM.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     THETN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GROUPS METHIONINE AMINOPEPTIDASES (M24) AMINOPEPTIDASES (M24B) AND CREATINASES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IKSDLEI 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   C.A., Fellay R., Bairoch A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 non-profit institutions as long
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Thermoanaerobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 7; DB 1; Pred. No. 20; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9213FBC2E00AFE4D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Broughton W.J., Rosenthal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 as its content
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  restrictions
                                                                                                                                                                                        restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18
                                                                                                                                                                                                                                                                 a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a collaboration
                                                                                                                  #OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                 outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ᄗ
                                                                                                                                                       ņ
                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
```

```
PGK_SYNYS
ID PGK_SYNYS
AC P7444
AC P744
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SARB
밁
                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 7
                                                                                                     Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PGK_SYNY3
P74421;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Okumura S., Shimpo S., Takeuchi C., Wada T., Watanabe A.,
Yamada M., Yasuda M., Tabata S.;
"Sequence analysis of the genome of the unicellular cyanobacterium
Synechocystis sp. strain PCC6803. II. Sequence determination of the
entire genome and assignment of potential protein-coding regions.";
DNA Res. 3:109-136(1996).
-i- CAYALYTIC ACTULTY: ATP + 3-phospho-D-glycerate = ADP + 3-
phospho-D-glyceroyl phosphate.
-i- PANTHWAY: Second phase of glycolysis; second step.
-i- SUBCULLULAR LOCATION: Cytoplasmic.
-i- SUBCELLIULAR LOCATION: Cytoplasmic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                              This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kaneko T., Sato S., Kotani H., Tanaka A., Asamizu E., Naka Miyajima N., Hirosawa M., Sugiura M., Sasamoto S., Kimura Hosouchi T., Matsuno A., Muraki A., Nakazaki N., Naruo K., Okumura S., Shimpo S., Takeuchi C., Wada T., Watanabe A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Synechocystis sp. (strain Bacteria; Cyanobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Phosphoglycerate kinase (EC PGK OR SLR0394.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transferase;
SEQUENCE 3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EMBL; AE013129; AAM24955.1; --
PROSITE; PS00111; PGLYCERATE_F
                                                                                                                                                                                                                   PROSITE; PS00111; PGLYCERATE KINASE; 1.
Transferase; Kinase; Glycolysis; Complete proteome
SEQUENCE 401 AA; 41784 MW; 74905FDBBCF81B7D CR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. MEDLINE=97061201; PubMed=8905231;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=1148;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             01-NOV-1997
                                                                                                                                                                                                                                                                                                                                                                                 EMBL; D90915; BAA18521.1; ALT_INIT.
HSSP; P18912; 1PHP.
                                                                                                                                                                                                                                                                                                  PRINTS; PR00477; PHGLYCKINASE.
                                                                                                                                                                                                                                                                                                                               InterPro; IPR001576; PGK.
Pfam; PF00162; PGK; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-NOV-1997 (Rel. 35,
L5-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                243 KIELAKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   35 KIELAKE
  76
                                                  95
  RLTPVGD
                                                  RLTPVGD 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   h 3.2%; S Similarity 100.0%; 7; Conservative 0;
                                                                                                        Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 394 AA; 42816 MW; 983EA9E59C240A32 CR
                                                                                                        3.2%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel. 35, Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      41
  82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation updat
se (EC 2.7.2.3).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           n PCC 6803).
Chroococcales; Synechocystis.
                                                                                                           0
                                                                                                                                    Score 7; pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 7;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KINASE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches
                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence determination of the cial protein-coding regions.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 1
                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 394;
                                                                                                                                                              Length 401;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CRC64;
                                                                                                                                                                                                                         CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nakamura
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0;
                                                                                                           0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps
                                                                                                           Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                              0
```

RESULT 7
SYP\_METTH

```
VNS1
                      2865555
                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                      RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                A PARTON O CONTRACTOR DE LA CONTRACTOR D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            EMBL; AE000842; AAB85117.1; -.

InterPro; IPR002106; AAtRNA ligaseII.

InterPro; IPR004154; HGTP anticodon.

InterPro; IPR004499; ProS_fam [.]

InterPro; IPR002314; tRNA-synt_2b.

InterPro; IPR002316; tRNA-synt_pro.

Pfam; PF00587; tRNA-synt_2b; 1.

Pfam; PF00129; HGTP anticodon; 1.
                                                                                                                      VNS1 BTV1A
P33471;
01-FEB-1994
01-FEB-1994
15-DEC-1998
                                                                                                                                                                                                                                                        _BTV1A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SYP METTH
026708;
15-JUL-1998
15-JUL-1998
16-OCT-2001
S5.
Bluetongue virus (serotype 1 / isolate Australia).
Viruses; dsRNA viruses; Reoviridae; Orbivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Smith D.R., Doucette-Stamm L.A., Deloughery C., Lee H.-M., Dubois Aldredge T., Bashirzadeh R., Blakely D., Cook R., Gilbert K., Harrison D., Hoang L., Keagle P., Lumm W., Pothier B., Qiu D., Spadafora R., Vicare R., Wang Y., Wierzbowski J., Gibson R., Jiwani N., Caruso A., Bush D., Safer H., Parwell D., Prabhakar S., McDougall S., Shimer G., Goyal A., Pietrovski S., Church G.M., Daniels C.J., Mao J.-I., Rice P., Noelling J., Reeve J.N.; "Complete genome sequence of Methanobacterium thermoautotrophicum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collabora between the Swiss Institute of Bioinformatics and the EMBL outstatiche Buropean Bioinformatics Institute. There are no restrictions on use by non-profit institutions as long as its content is in no modified and this statement is not removed. Usage by and for commer entitles requires a license agreement (See http://www.isb-sib.ch/annou or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      deltaH: functional analysis and comparative genomics.";

J. Bacteriol. 179:7135-7155 (1997).

J. CATALYTIC ACTUITY: AFF + L-proline + tRNA(Pro) = AMP +

diphosphate + L-prolyl-tRNA(Pro).

J. SUBCELLULAR LOCATION: Cytoplasmic.

SIMILARITY: BELONGS TO CLASS-II AMINOACYL-TRNA SYNTHETASE FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Methanobacterium thermoautotrophicum.
Methanobacteria; Methanobacteria; Methanobacteriales;
Archaea; Euryarchaeota; Methanobacter.
Methanobacteriaceae; Methanothermobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRINTS; PR01046; TRNASYNTHPRO.
TIGRPAMS; TIGR00408; ProS_fam_I; 1.
PROSITE; PS50862; AA_TRNA_LIGASE_II; 1.
Aminoacyl-trna synthetase; Protein biosynthesis; Ligase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDLINE=98037514; PubMed=9371463;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN=Delta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                   82
                                                                                                                                                                                                                                                                                                                                                                                                                  37
                                                                                                                                                                                                                                                                                                                                                              ELAKEAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OR MTH611
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             proteome.
3 482 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 36, Created)
(Rel. 36, Last sequence update)
(Rel. 40, Last annotation update)
synthetase (BC 6.1.1.15) (Proline--tRNA ligase) (ProRS).
                                                                                                                         (Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                  43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                protein
                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                      . 28, Created)
. 28, Last sequ
. 37, Last anno
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55805 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.2%;
                                                                                                Last sequence up
Last annotation
NS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score 7; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57D81ED7E9496BAA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                               update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       482
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB 1;
                                                                                                                                                                                                                               ጅ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ⋧
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length 482;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATP-binding;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a collaboration - MBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for commercial 
ib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   s:,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ٠
.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

```
RESULT 10
G6PI_YEAST
ID _G6PI_YEAST
AC P12709;
                                                                                                                                            밁
                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                  RESULT
VNS1_B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OX RAP RAP RAP RATION OX R
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
Best Local S
Matches 7
                                                                                                                                                                                                                                    Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LT 9
_BTV20
_VNS1_BTV20
_P32931;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                modified
entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PIR; A60000; A60000.
InterPro; IPR002630; Orbi NS1.
Pfam; PF01718; Orbi NS1; I.
Nonstructural proteIn.
SEQUENCE 552 AA; 64593 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gould A.R., Pritchard L.I., Tavaria M.D.;
"Nucleotide and deduced amino acid sequences of the non-structural protein, NS1, of Australian and South African bluetongue virus serotype 1.";
Virus Res. 11:97-107(1988).
                                                                                                                                                                                                                                                                                                                                                InterPro; IPR002630; Orbi NS1. Pfam; PF01718; Orbi NS1; I. Nonstructural protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its the by non-profit institutions as long as its content is in no way
                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; X56735; CAA40059.1;
PIR; S25105; S25105.
PIR; A48553; A48553.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        entities requires a license agreement (Son send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "Nucleotide sequence of the genome segment encoding nonstructural protein NS1 of bluetongue virus serotype 20 from Australia."; Virus Genes 6:387-392(1992).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Cowley J.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE FROM N.A.
MEDLINE=93118247; PubMed=1335630;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bluetongue virus (serotype 20 / isolate Australia)
Viruses; dsRNA viruses; Reoviridae; Orbivirus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S5 OR S6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-OCT-1993
15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-OCT-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.
MEDLINE=89073916; PubMed=2849255;
Gould A.R., Pritchard L.I., Tavar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NCBI_TaxID=10904;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=31562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nonstructural
                                                                                                                                            89
                                                                                                                                                                                 36 IELAKEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      36
                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83
                                                                                                                                            IELAKEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IELAKEA 42
                                                                                                                                                                                                                                  7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               non-profit institutions as a long this statement is not removed. Usage by and to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (Rel. 27, Rel. 27, Rel. 37,
                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                            74
                                                                                                                                                                                        42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein
                                                                                                                                                                                                                                                                                                                                  Ä
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                          3.2%; Suc
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                  64511 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3.2%; Score 7; DB 1
100.0%; Pred. No. 28;
cive 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Last
Last
NS1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequence update)
annotation update)
                                                                                                                                                                                                                                                                                Score 7;
                                                                                                                                                                                                                                                          Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                  9B72CF6B1F9F4993 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               D96BFA25587463D1 CRC64;
                                                                                                                                                                                                                                       Mismatches
                           553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      552
                                                                                                                                                                                                                                                        DB 1;
5. 28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1,
                                                                                                                                                                                                                                                                                   Length 552;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length 552;
                                                                                                                                                                                                                                       0; Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0,
                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
```

```
01-OCT-1989 (Rel. 12, Created)
01-OCT-1994 (Rel. 30, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glucose-6-phosphate isomerase (EC 5.3.1.9) (G
isomerase) (PGI) (Phosphohexose isomerase)
PGI1 OR YBR196C OR YBR1406.
                                                     EMBL;
EMBL;
EMBL;
                                                                                                                                                                                                                                                                                                                                                                                    Garrels J.I., Futcher B., Kobayashi R., Lattes Volpe T., Warner J.R., McLaughlin C.S.; Submitted (SEP-1994) to the SWISS-PROT data be -!- CATALYTIC ACTIVITY: D-glucose 6-phosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Demolis N., Mallet L., Bussereau F., Jacquet M.;
"RIM2, MSI1 and PGI1 are located within an 8 kb segment
"RIM2, MSI2 and PGI1 are located within and 10 conto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Saccharomyces cerevisiae (Baker's yeast).
Bukaryota; Fungi; Ascomycota; Saccharomycotina;
Saccharomycetales; Saccharomycetaceae; Saccharom
NCBI_TaxID=4932;
                                    EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yeast
[5]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    "Nucleotide sequence and chromosome II including and a new member of the Yeast 10:819-831(1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          represented gene L21 and a new putative essential gene with leucine zipper motif.";
Yeast 9:645-659(1993).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Green J.B.A., Hartley B.S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MEDLINE=89201230; Pub
Green J.B.A., Wright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=89211945; PubMed=3072254;
Tekamp-Olson P., Najarian R., Burke R.L.;
"The isolation, characterization and nucleotide sequence of phosphoglucoisomerase gene of Saccharomyces cerevisiae.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.
MEDLINE=89211945;
                                                                                                                                                entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                    use by non-profit institutions as long modified and this statement is not removed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mallet L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=95066384; PubMed=7975899;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=93348777; PubMed=8346681;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           "The structure and regulation of phosphoglucose isomerase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=AB320
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gene
                                                                                                                                                                                                                                                               This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACETYLATION.
L; M37267; AAA34862.1; 

11; M21696; AAA34894.1; 

L; X1397; CAA32158.1; 

221487; CAA79683.1; 

1236065; CAA85158.1; 

170484; NUBY. 

P; Q9N1E2; 1HOX.
                                                                                                                                                                                                                     s SWISS-PROT entry is copyright. It is produced through ween the Swiss Institute of Bioinformatics and the Eleuropean Bioinformatics Institute. There are no resti
                                                                                                                                                                                                                                                                                                                               phosphate.
PATHWAY: Involved:
SUBUNIT: HOMODIMER
                                                                                                                                                                                                                                                                                              SUBCELLULAR LOCATION:
SIMILARITY: BELONGS TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gen.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73:153-161(1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Genet. 215:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bussereau F.,
                                                                                                                                                                                                                                                                                                BELONGS TO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          215:100-106(1988)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PubMed=3071735;
ght A.P.H., Cheung
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     F., Jacquet M.;
analysis of an 11.7 kb
ing BEM1, a new gene of
the KRE2/MNT1 family.";
                                                                                                                                                                                                                                                                                                                                                    in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.A.
                                                                                                                                                                                                                                                                                                                                                    glycolysis
                                      11111
                                                                                                                                                                                                                                                                                                                 Cytoplasmic
                                                                                                                                                                                                                                                                                                THE
                                                                                                                                                                                                                                                                                                GPI FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               W.Y., Lancashire W.
                                                                                                                                                                                                                                                                                                                                                      and
                                                                                                                                                                 (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Saccharomyces
                                                                                                                                                                                                                                                                                                                                                    'n
                                                                                                                                                                                                                                                                                                                                                                                                                                              Latter
                                                                                                                                                                                                     as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (GPI)
(PHI)
                                                                                                                                                                 http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                    gluconeogenesis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        fragment of the WD-40
                                                                                                                                                                                  Usage
                                                                                                                                                                                                                                                                                                                                                                                        1)
                                                                                                                                                                                                    its content
                                                                                                                                                                                                                                                                                                                                                                                                                                            G.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saccharomycetes;
                                                                                                                                                                                                                                                                                                                                                                                          D-fructose
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Phosphoglucose
                                                                                                                                                                                    γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ,
E
                                                                                                                                                                                                                                                                                                                                                                                                                                                Schwender
                                                                                                                                                                                                                         restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                of.
                                                                                                                                                                                    and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            yeast
                                                                                                                                                                                                                                          EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ij
                                                                                                                                                                                                         18
                                                                                                                                                                                                                                              a collaboration
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          family
                                                                                                                                                                                                                                          outstation
                                                                                                                                                                     ch/announce/
                                                                                                                                                                                                       in
                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽,
                                                                                                                                                                                      commercial
                                                                                                                                                                                                         g
                                                                                                                                                                                                                           9
```

```
RESULT 11
YBJL_ECOLI
ID YBJL_ECO
AC P75812;
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SO SO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PEAM; PF00342; PGI; 1. —

PRINTS; PR00662; G6PISOMERASE. 1;

PROSITE; PS00765; P GLUCOSE_ISOMERASE_2;

PROSITE; PS00174; P GLUCOSE_ISOMERASE_2;

Gluconeogenesis; Glycolysis; Isomerase;

INIT_MET 0 0 0

ACT_SITE 397 397 BY SIMILARI

ACT_SITE 519 519 BY SIMILARI

MOD_RES 1 1 1

ACTIVIATION

SEQUENCE 553 AA; 61168 MW; 557755784
                                                                                                                                                                                                                                                                                     "A 718-kb DNA ..."
"A 718-kb DNA ...
"Corresponding to the 12.,
corresponding to the 12.,
corres
                                                                                                                                                                                                                                                                                                                                                                   Sampei G., Sent
Sampei G., Sent
"The M., Horiuchi"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STRAIN=0157:H7 / EDL933 / ATCC 700927;

MEDLINE=21074935; PubMed=11206551;

Perna N.T., Plunkett G. III, Burland V., Mau B., Glasner J.D.,

Rose D.J., Mayhew G.F., Evans P.S., Gregor J., Kirkpatrick H.A.,

Posfai G., Hackett J., Klink S., Boutin A., Shao Y., Miller L.,

Grotbeck E.J., Davis N.W., Lim A., Dimalanta E.T., Potamousis K.,

Apodaca J., Anantharaman T.S., Lin J., Yen G., Schwartz D.C.,

Welch R.A., Blattner F.R.,

"Genome sequence of enterohaemorrhagic Escherichia coli O157:H7.",

Nature 409:529-533(2001).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Science
[2]
                                                                                                                                                                                                                                                                                                                                                                                 Oshima T., Aiba H., Baba T., Fujita K., Hayashi K., Honjo A., Ikemoto K., Inada T., Itoh T., Kajihara M., Kanai K., Kashimoto k. Kitagawa M., Makino K., Masuda S., Miki T., Mizobuchi Mori H., Motomura K., Nakamura Y., Nashimoto H., Nishio Y., Saitc Sampei G., Seki Y., Tagami H., Takemoto K., Wada C., Yamamoto Y., Yano M., Horiuchi T.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Escherichia coli, and Escherichia coli O157:H7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hypothetical membrane protein ybj
YBJL OR B0847 OR Z1074 OR ECS0927
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUN-2002 (Rel. 41,
15-JUN-2002 (Rel. 41,
15-JUN-2002 (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN=K12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          "The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=562,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   InterPro; IPR001672; G6P_Isomerase
STRAIN=0157:H7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE=97061202;
                    SEQUENCE
                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B., Shao Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ||||AKEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complete genome sequence nce 277:1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IELAKEA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      P71206;
                                                                                                                                                                                                                                                                               FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             z
                                                                                                                                                                                                                                                                                                                                      sequence of the Escherichia to the 12.7-28.0 min region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       83334;
RIMD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PubMed=8905232;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3.2%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Last
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last
0509952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gamma subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BY SIMILARITY.
BY SIMILARITY.
ACETYLATION.
W; 55775F78452E1952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score 7; DB 1; Pred. No. 28; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Isomerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Escherichia coli K-12.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ١,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  C.A., Perna N.T., Burl
.D., Rode C.K., Mayhew
A., Goeden M.A., Rose I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB
28;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Acetylation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ۲,
                                                                                                                                                                                                                                                                                                                                             coli K-12 genor
on the linkage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 553;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels
                                                                                                                                                                                                                                                                                                                                                                   genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Burland V
hew G.F.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U
                                                                                                                                                                                                                                                                                                                                                                                                                                 Saito N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ٥,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <
;
```

SQ TTIME

```
RESULT 12
Y4BJ_RHISN
밁
                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                        Query Match
Best Local S
                                                                                                                                                                                                                           Matches
                                                                          01-NOV-1997
01-NOV-1997
15-JUN-2002
                                                                                                                                                                                                                                                                                                        TRANSMEM
TRANSMEM
TRANSMEM
                                                                                                                                                                                                                                                                                                                                                      TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Zenno S., Koike H., Kumar A.N., Jayaraman R., Tanokura M., Sai "Biochemical characterization of NfsA, the Escherichia coli ma nitroreductase exhibiting a high amino acid sequence homology a Vibrio harveyi flavin oxidoreductase.";

J. Bacteriol. 178:4508-4514(1996).
              Rhizobium sp. (strain NGR234).
Plasmid sym pNGR234a.
Bacteria; Proteobacteria; alpha subdivision; Rhizobiaceae group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Kuhara S., Shiba T., Hattori M., Shinagawa H.; "Complete genome sequence of enterohemorrhagic Escherichia coli 0157:H7 and genomic comparison with a laboratory strain K-12.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDLINE-21156231; PubMed=11258796;
Hayashi T., Makino K., Ohnishi M., Kurokawa K., Ishii K.,
Han C.-G., Ohtsubo E., Nakayama K., Murata T., Tanaka M.,
Iida T., Takami H., Honda T., Sasakawa C., Ogasawara N.,
       Rhizobiaceae;
                                                                 Hypothetical
                                                                                                           Y4BJ_RHISN
P55377;
                                                                                                                                                                                                                                                                                             TRANSMEM
                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                          TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                       Hypothetical TRANSMEM
                                                                                                                                                                                                                                                                                                                                                                                                            Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                        InterPro; IPR000309;
                                                                                                                                                                                                                                                                                                                                                                                                                                  EcoGene; EG13681; ybjL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE=96345615;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRAIN=K12 / AB1157;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA Res. 8:11-22(2001).
                                                                                                                                                                               303
                                                                                                                                                                                                    204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBCELLULAR LOCATION: Integral membrane protein SIMILARITY: BELONGS TO THE UPF0199 FAMILY. YBJL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBCELLULAR LOCATION: Integral membrane
                                                                                                                                                                                            VTEEVVV 210
                                                                                                                                                                              VIEEVVV
                                                                                                                                                                                                                                                                                                                                                                                                                                         AE005266; AAG55223.1; -. AP002553; BAB34350.1; -. D38308; BAA07424.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AE000187; AAC73934.1; -. D90722; BAA35551.1; -. D90723; BAA35559.1; -.
                                                                                                                                                                                                                        l Similarity
7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      OF 396-527 FROM N.A.
                                                                                                                                                                                                                                                                     (Rel.
(Rel.
(Rel.
(Rel.
1 67.9
                                                                                                                                                                                                                        Conservative (
                                                                                                                                                                               309
                                                                                                                                                                                                                                                                                                                                                                                                protein;
         Rhizobium
                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
                                                              35,
41,
kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PubMed=8755878;
                                                                                                                                                                                                                                                                               35
115
115
402
402
471
557
                                                                                                                                                                                                                                                                        60351
                                                                                                                                                                                                                                                                                                                                                                                                                  TrkA_Kuptake
                                                             Last sequence update)
Last annotation update)
protein Y4BJ.
                                                                                                 Created)
                                                                                                                                                                                                                                                                     MW:
                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                    Score 7;
Pred. No
                                                                                                                                                                                                                                                                                                     POTENTIAL
POTENTIAL
POTENTIAL
POTENTIAL
POTENTIAL
POTENTIAL
POTENTIAL
                                                                                                                                                                                                                                                                    ISDTA -> TLKCI (IN REF. 5).
9FD6F8CA67945F85 CRC64;
                                                                                                                                                                                                                                                                                         POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                      POTENTIAL
                                                                                                                                                                                                                         mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  It is produced through a collaboration
                                                                                                                       630
                                                                                                                                                                                                                                                                                                                                                                                                Complete
                                                                                                                                                                                                                              DB
28;
                                                                                                                      ξ
                                                                                                                                                                                                                                               بر
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tanokura M., Saigo K.; cherichia coli major equence homology to Frp,
                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                               Length 561;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                , Ishii K., 'Tanaka M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (Potential).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Yasunaga
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yokoyama K.,
Tobe T.,
                                                                                                                                                                                                                        <u>,,</u>
                                                                                                                                                                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ;
                                                                                                                                                                                                                        0
```

```
ACTE SOOO OO SETTTOOO OO SETTOOO OO SETTOOOO OO SETTOOO OO SETTOOOO OO SETTOOO OO OO SETTOOO OO SET
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
ESTJ M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 7
Query Match
                                                                       Hydrolase;
NON_TER
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MANSE
ESTJ_N
                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=91072375; PubMed=2254326;

Venkatesh K., Abdel-Aal Y.A.I., Armstrong F.B., Rôe R.M.;

Venkatesh K., Abdel-Aal Y.A.I., Romenie esterase from the plasma of the tobacco hornworm, Manduca sexta.";

J. Biol. Chem. 265:21727-21732 (1990).

-i- FUNCTION: JH ESTERASE PLAYS A CRUCIAL ROLE IN THE DECREASE OF JH ACTIVITY IN LEPIDOPTERAN INSECTS, BY HYDROLYZING THE METHYL ESTER OF JH. IT IS ALSO INVOLVED IN THE TRANSPORT OF JH.

-i- CATALYTIC ACTIVITY: Methyl (2E,6E)-(10R,115)-10,11-epoxy-3,7,11-trimethyltrideca-2,6-dienoate + methanol.

-i- SMILARITY: BELONGS TO THE TYPE-B CARBOXYLESTERASE/LIPASE FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               01-FEB-1991 (Rel. 17, Created)
01-FEB-1991 (Rel. 17, Last sequence update)
01-FEB-1994 (Rel. 28, Last annotation update)
1-FEB-1994 (Rel. 17, Last annotation update)
1-FEB-1991 (Rel. 17, Created)
1-FEB-1991 (Rel. 17, Created)
1-FEB-1991 (Rel. 17, Created)
1-FEB-1991 (Rel. 17, Created)
1-FEB-1991 (Rel. 17, Last sequence update)
1-FEB-1991 (Rel. 17, Last sequ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TRANSMEM
TRANSMEM
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            [1]
SEQUENCE FROM N.A.
MEDLINE=97305956; PubMed=9163424;
MEDLINE=97305956; PubMed=9163424;
                                                                                                                                                                                                              PROSITE; PS00122; CARBOXYLESTERASE PROSITE; PS00941; CARBOXYLESTERASE
                                                                                                                                                                                                                                                                                                   PIR; A36527; A36527.
InterPro; IPR002018; CarbesteraseB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P19985;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TISSUE=Larval plasma;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          InterPro; IPR001254; Ser_protease_Try
Pfam; PF00089; trypsin; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EMBL; AE000066; AAB91625.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Nature 387:394-401(1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Typothetical protein; Plasmid;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Molecular basis of symbiosis between Rhizobium and legumes.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          263 LYTFAPY 269
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           59 LYTFAPY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ween the Swiss Institute of Bioinformatics and the EMBL outstation - Buropean Bioinformatics Institute. There are no restrictions on its by non-profit institutions as long as its content is in no way iffied and this statement is not removed. Usage by and for commercial ities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SUBCELLULAR LOCATION: Integral SIMILARITY: DISTANTLY RELATED T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _TaxID=7130;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MANSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SO1.UPC;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity 7; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 258
630 AA;
                                                                                                                                                                          Serine esterase.
                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 28 P
278 P
; 67854 MW;
                                                                                         1659
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.2%;
                                                                                     ¥.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 7; DB 1; Pred. No. 32; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              POTENTIAL.
                                                                                     D321EA432E58B848 CRC64;
Score 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Transmembrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4C1FB7BA2EB44A02 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TO PEPTIDASE FAMILY S2C.
                                                                                                                                                                                                              B 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Broughton W.J., Rosenthal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15
DB 1;
                                                                                                                                                                                                              PARTIAL.
PARTIAL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (JH esterase) (Fragment).
Length 15;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Potential).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      esterase from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Hexapoda;
Glossata;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
```

밁 S

```
STEEN BOOK OF THE BOOK AND TO COLOR OF THE BOOK OF COLOR OF THE BOOK OF COLOR OF THE BOOK 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 14
UCRH_SOLTU
밁
                                           Ś
                                                                                                    Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local
Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=cv. Hansa; TISSUE=Tuber;
MEDLINE=94198758; PubMed=7764624;
Braun H.-P., Kruft V., Schmitz U.K.;
"Molecular identification of the ten subunits of cytochrome-
reductase from potato mitochondria.";
Planta 193:99-106(1994).
-i- FUNCTION: THIS IS A COMPONENT OF THE UBIQUINOL-CYTOCHROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           01-FEB-1996 (Rel. 33, Created)
01-FEB-1996 (Rel. 33, Last sequence update)
16-OCT-2001 (Rel. 40, Last annotation update)
Ubiquinol-cytochrome C reductase complex 7.8
(Mitochondrial hinge protein) (CR7).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   UCRH_SO
P48504;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE FROM N.A., AND SEQUENCE (STRAIN=cv. Desiree; TISSUE=Tuber; MEDLINE=94283637; PubMed=8013669;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Solanum tuberosum (Potato).
Eukaryota; Viridiplanea; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Asteridae; euasterids I; Solanales; Solanaceae; Solanum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Braun H.-P., Jaensch L., Kruft V., Schmitz U.K.; "The 'Hinge' protein of cytochrome c reductase fr acidic domain and has no cleavable presequence."; FEBS Lett. 347:90-94(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for con
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 1-17; 43-67 AND 62-68.
                                                                                                                                                                                                                                                                                                                                                                          EMBL;
                                                                                                                                                                                                                                                                                                                                                                                                                     entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -
                                                                                                                                                                                                                                                                                        Mitochondrion; Inner
                                                                                                                                                                                                                                                                                                              InterPro; IPR003422; UCR_hinge.
Pfam; PF02320; UCR_hinge; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             205
  30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ហ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FUNCTION: THIS IS A COMPONENT OF THE UBIQUINOL-CYTOCHROME C REDUCTASE COMPLEX (COMPLEX III OR CYTOCHROME B-C1 COMPLEX). IS PART OF THE MITOCHONDRIAL RESPIRATORY CHAIN. THIS PROTEII MEDIATE FORMATION OF THE COMPLEX BETWEEN CYTOCHROMES C AND CATALYTIC ACTIVITY: QH(2) + 2 ferricytochrome c = Q + 2 ferrocytochrome c = GTALYTIC ACTIVITY: QH(2) + 2 ferricytochrome c = GTALYTIC ACTIVITY: QH(2) + 2 ferrocytochrome c = GTALYTIC ACTIVITY: QH(3) + 2 ferrocytochrome c = O + 2 ferrocytochrome c = GTALYTIC ACTIVITY: QH(3) + 2 ferrocytochrome c = O + 2 ferrocytochrome c = 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SUBUNITS, 2 CORE PROTEINS AND 5 LOW-MOLECULAR WEIGHT SUBCELLULAR LOCATION: Mitochondrial inner membrane. DOMAIN: LACKS THE ACIDIC DOMAIN OF OTHER UQCRH.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SIMILARITY: BELONGS TO THE UQCRH/QCR6 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TEEVIV 10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TEEVVV 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SOLTU
                                                 CTKRVE
  CTKRVE
                                                                                                                                                                                                                                                                                                                                                                       X79273; CAA55860.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity 6; Conserv
                                                                                                    Similarity 6; Conserv
                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .larity 100.0%;
Conservative (
                                                   12
                                                                                                       Conservative
                                                                                                                                                                                                            Α.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STANDARD;
                                                                                                                                                                                                            7846 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AND SEQUENCE OF
TISSUE=Tuber;
                                                                                            100.0%; **
                                                                                                                                                                                                                                                                                        membrane;
                                                                                                                                                           2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                        Score 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No. 10; Mismatches
                                                                                                                                                                                                               2CAE7D9E5B1C6383
                                                                                                    Pred. No. 44; Mismatches
                                                                                                                                                                                                                                                                                        Electron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (See http://www.isb-sib.ch/announce/
                                                                                                                                DB 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10;
                                                                                                                                                                                                                                                                                        transport; Respiratory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.8 kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                    0
                                                                                                                                                           Length 68
                                                                                                                                                                                                               CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        potato
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3 RESPIRATORY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROTEIN M
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (EC 1.10.2.2)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a collaboration
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lacks
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                    0
                                                                                                                                                                                                                                                                                        chain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WHICH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                       Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 commercia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              YE26
                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                ş
```

```
RESULT 15
RPOL_SULTO
ID RPOL_SU
AC Q96YA7;
                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                            Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15-JUN-2002
15-JUN-2002
15-JUN-2002
                                                                      16-OCT-2001
16-OCT-2001
16-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kawarabayasi Y., Hino Y., Horikawa H., Jin-no K., Takahashi Sekine M., Baba S.-I., Ankai A., Kosugi H., Hosoyama A., Ful Nagai Y., Nishijima K., Otsuka R., Nakazawa H., Takamiya M., Yoshizawa T., Tanaka T., Kudoh Y., Yamazaki J., Kushida N., Aoki K.-I., Masuda S., Yanagii M., Nishimura M., Yamagishi J. Oshima T., Kikuchi H.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no restr use by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entities requires a license agreement (See http://www.isb-sor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              - i -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             "Complete genome sequence of an aerobic thermoacidophilic Crenarchaeon, Sulfolobus tokodaii strain7.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE FROM N.A.
STRAIN-JCM 10545 / 7;
MEDLINE=21456156; PubMed=11572479;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sulfolobus tokodaii.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA-directed RURPOL OR STS238
                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AP000989; BAB67370.1; -.
InterPro; IPR001306; RNA_pol_L.
Pfam; PP01193; RNA_pol_L; 1.
ProDom; PD004240; RNA_pol_L; 1.
PROSITE; PS01154; RNA_POL_L_13KD; 1.
Transferase; Transcription; DNA-directed RNA polymerase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sulfolobus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Archaea; Crenarchaeota;
                 AQ 1426.
Aquifex aeolicus
                                                                                                                                                                 AQUAE
                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE
Bacteria;
                                                     Hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                         Complete
                                                                                                                                                                                                                                                                           135 EEVKSI
                                                                                                                                                                                                                                       85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CATALYTIC ACTIVITY: N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FUNCTION: DNA-dependent RNA polymerase of DNA into RNA using the four ribonucl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Res. 8:123-140(2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RPC19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SIMILARITY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          substrates
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TaxID=111955;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      oruns
                                                                                                                                                                                                                                       EEVKSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RNA) (N)
                                                                                                                                              AQUAE
                                                                                                                                                                                                                                                                                                                6,
                                                                                                                                                                                                                                                                                                                                 Similarity
                                                                                                                                                                                                                                                                                                                                                                                                     proteome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RNA POLYMERASE SUBUNIT FAMILY.
Aquificae; Aquificae (class); Aquificales; Aquificaceae;
                                                                                                                                                                                                                                                                                                                                                                                        93
                                                                                                                                                                                                                                                                           140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel. 41, Createu,
(Rel. 41, Last sequence update)
(Rel. 41, Last annotation updat
4 RNA polymerase subunit L (EC 2
                                                                                                                                                                                                                                         90
                                                 (Rel. 40, Created)
(Rel. 40, Last sequence update)
(Rel. 40, Last annotation updat
(protein AQ_1426.
                                                                                                                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                        ΑA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STANDARD;
                                                                                                                                              STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BELONGS TO THE ARCHAEBACTERIA RPOL /
                                                                                                                                                                                                                                                                                                                                                                                        10454 MW;
                                                                                                                                                                                                                                                                                                                               2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Thermoprotei; Sulfolobales; Sulfolobaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           nucleoside triphosphate
                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                   Score 6;
Pred. No
                                                                                                                                                PRT;
                                                                                                                                                                                                                                                                                                                                                                                        671760C9DEF32A24
                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             lymerase catalyzes the transcription ribonucleoside triphosphates as
                                                                                                                                                                                                                                                                                                                                   No.
                                                                                                                                                  100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 update)
(EC 2.7.7.6)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            93
                                                                                                                                                                                                                                                                                                                                   DB 1;
5. 58;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ormatics and the EMBL outsue. There are no restrictions and as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₿
                                                                                                                                                A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        . Usage by and for http://www.isb-sib
                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                    Length 93;
                                                                                                                                                                                                                                                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Yamagishi A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           z
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         EUKARYOTIC RPB11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           diphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         , Fukui S.,
a M., Kato Y.,
N., Oguchi A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             for
                                                                                                                                                                                                                                                                                                                   0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .ch/announce/
                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ဓ္ဌ
                                                                                                                                                                                                                                                                                                                   0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches
 MOD RES
DISULFID
DISULFID
                                                       PRINTS; | PROSITE;
                                                                                                                      J. Biol Chem. 264:20438-20447(1989).

-- FUNCTION: HAS A GLUTATHIONE-DISULFIDE

-- THE PRESENCE OF NADPH AND GLUTATHIONE

MOLECULAR WEIGHT DISULFIDES AND PROTEI

-- SUBCELLULAR LOCATION: Cytoplasmic.

-- SIMILARITY: BELONGS TO THE GLUTAREDOXI
PIR; A32682; GORB.

HSSP; P35754; 1JHB.
                                                                                                                                                                                                                                                                                                                                                     Oryctolagus cuniculus (Rabbit).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
                                                                                                                                                                                                                                                                                   TISSUE=Bone marrow;
MEDLINE=90062176; PubMed=2684977;
                                                                                                                                                                                                                                                                                                                                                                                                              01-OCT-1989 (Rel. 12, Created)
01-OCT-1989 (Rel. 12, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation update)
Glutaredoxin (Thioltransferase) (TTase).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GLRX_RABIT
P12864;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RABIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=98196666; PubMed=9537320;
Deckert G., Warren P.V., Gaasterland T., Young W.G., Lenox A.L.,
Graham D.E., Overbeek R., Snead M.A., Keller M., Aujay M., Huber
Feldman R.A., Short J.M., Olson G.J., Swanson R.V.;
"The complete genome of the hyperthermophilic bacterium Aquifex
                                                                   InterPro; IPR002109; Glutaredoxin.
InterPro; IPR00063; Thiored.
Pfam; PF00462; glutaredoxin; 1.
PRINTS; PR00160; GLUTAREDOXIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Nature 392:353-358(1998).
                                                                                                                                                                                                                                               characterization, and amino
                                                                                                                                                                                                                                                                                                                                                                                                     GLRX OR GRX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hypothetical protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; AE000740; AAC07390.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             aeolicus
                                          Redox-active
                                                                                                                                                                                                                                                            Hopper S., Johnson R.S., Vath J.E., Bi
                                                                                                                                                                                                                                                                                                                    SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 VCBI_TaxID=63363;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EEVKSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EEVKSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6; Conserv
PRO0160; GLUTAREDOXIN; 1.
PRO0195; GLUTAREDOXIN; 1.
tive center; Electron transport; Acetylation
1 1 ACETYLATION.
22 25 REDOX-ACTIVE.
78 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.8%; but
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11858 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Coiled coil; Complete proteome.
7 COILED COIL (POTENTIAL).
1858 MW; 59D1B3760128AD68 CRC64
                                                                                                                                                                                                                                              th J.E., Biemann K.;
one marrow. Purification,
acid sequence determined
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 6; DB 1
Pred. No. 63;
0; Mismatches
                                                                                                                                                    GLUTAREDOXIN FAMILY
                                                                                                                                                                           ULFIDE OXIDOREDUCTASE ACT
THIONE REDUCTASE. REDUCES
PROTEINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                               δĀ
                                                                                                                                                                                                                                                 tandem mass
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  A.L.,
Huber
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                            Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
PRO2_DICDI
ID PRO2_DICDI
AC P26200;
DT 01-MAY-1992
DT 01-MAY-1992
DT 15-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 18
FOLB_STAAU
 RROCOGEDIAC
                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ဝိ
                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match
Best Local
                                                                                                                                                                                                              Matches
                                                                                                                                                                                                                        Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                               A DIAMETER.
-!- SIMILARITY: BELONGS T
PDB; 1DHN; 20-APR-99.
PDB; 2DHN; 20-APR-99.
InterPro; IPR003098; Fole
Pfam; PF02152; FolB; 1.
                                                                                                                                                                                                                                                       Lyase; For SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                        -!- CATALYTIC ACTIVITY: 2-amino-4-hydroxy-6-(D-erythro-1,2,3-trihydroxypropyl)-7,8-dihydropteridine = 2-amino-4-hydroxy-6-hydroxymethyl-7,8-dihydropteridine + glycolaldehyde.
hydroxymethyl-7,8-dihydropteridine + glycolaldehyde.
-!- PATHWAY: FOLAte biosynthesis.
-!- PATHWAY: FOLATE HONOCTAMER. FOUR MOLECULES ASSEMBLE INTO A RING, AN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FOLB ST
P56740;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STAAU
SEQUENCE FROM N.A
                              Dictyostelium discoideum (Slime mold)
Eukaryota; Mycetozoa; Dictyosteliida;
                                                                                                                                                                                                                                                              TIGREAMS; TIGRO0525; folB; 1.
TIGREAMS; TIGRO0526; folB_dom; 1.
Lyase; Folate biosynthesis; 3D-structure
                                                                                                                                                                                                                                                                                                                                                                                                                            aldolase from Staphylococcus aureus.";
Nat. Struct. Biol. 5:357-362 (1998).
-i-FUNCTION: CATALYZES THE CONVERSION OF
HYDROXYMETHYL-7,8-DIHYDROPTERIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hennig M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRAIN=ATCC 25923;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Staphylococcus aureus Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE
                 NCBI_TaxID=44689;
                                                              Profilin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MEDLINE=98246408;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  X-RAY CRYSTALLOGRAPHY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NCBI_TaxID=1280,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dihydroneopterin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                30-MAY-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                        135 EEVKSI
                                                                                                                                                                      59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N
                                                                                                                                                                                                                                                                                                                                                                 RINGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      QEFVNS
                                                                                                                                                                     EEVKSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STAAU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       QEFVNS
                                                                                                                                                                                                                        Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      structure and reaction mechanism
                                                                                                                                                                                                                                                                                                                                                               COME TOGETHER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 D'Arcy A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            106
                                                                                                                                                                                                                                                         121
                                                                                                                                                                                         140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (Rel. 39,
(Rel. 39,
(Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         7
                                                                      (Rel.
(Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.8%; Score 6; larity 100.0%; Pred. No. Conservative 0; Mismatci
                                                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                         AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
A
                                                                                                                STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               . 39, Last sequence update)
. 41, Last annotation update)
aldolase (EC 4.1.2.25) (DHNA)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PubMed=9586996;
                                                                                                                                                                                                                                                       13751 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11822 MW;
                                                                                                                                                                                                                                                                                                           FolB.
                                                                      Created)
Last seq
Last ann
                                                                                                                                                                                                                        2.8%; Score 6;
100.0%; Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hampele
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (2.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bacillales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                                                                                                                                                ö
                                                                                                                                                                                                                                                                                                                                                             FOUR MOLECULES ASSEMBLE O GIVE A CYLINDER WITH A
                                                                       sequence u
                                                                                                                                                                                                                                                                                                                                            THE DHNA FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ANGSTROMS).
                                                                                                                                                                                                              0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F6A1D7CC096A2105 CRC64;
                                                                                                                                                                                                                                                         55B267FB69CA3D8D CRC64;
                                                                                                                                                                                                              Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Staphylococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Page M.G.,
hanism of 7,
                                                                                                                124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DB 66;
                               Dictyostelium
                                                                                                                                                                                                                        DB 1;
b. 75;
                                                                       update)
                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                        7,8-DIHYDRONEOPTERIN
                                                                                                                                                                                                                                 Length 121;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 106;
                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>.</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Oefner C., Dale G.I, B-dihydroneopterin
                                                                                                                                                                                                                                                                                                                                                               INTO A RING, AND HOLE OF AT LEAST
                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                              Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                         6-
                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 20
NUSB_CAMJE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "Dictyostellum uncolling";
in structure and function.";
J. Cell Sci. 100:481-489(1991).
J. Cell Sci. 100:481-489 (1991).
FUNCTION: BINDS TO ACTIN AND AFFECTS THE STRUCTURE OF THE CYTOSKELETON. AT HIGH CONCENTRATIONS, PROFILIN PREVENTS THE POLYMERIZATION OF ACTIN, WHEREAS IT ENHANCES IT AT LOW POLYMERIZATIONS. BY BINDING TO PIP2, IT INHIBITS THE FORMATIONS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUSB CAMJE
Q9PICO;
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DictyDb; DD01036; proB.
DictyDb; DD01036; proB.
InterPro; IPR002097; Profilin.
Pf4mm; PF00235; proFilin; 1.
SMART; SM000392; PROF; I.N.
PROSITE; PS00414; PROFILIN; 1.
Actin-binding; Cytoskeleton; Multigene family.
SEQUENCE 124 AA; 12729 MW; 04F5617BF0DB5A8F CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a clother the Swiss Institute of Bioinformatics and the EMBL the European Bioinformatics Institute. There are no restrict use by non-profit institutions as long as its content is modified and this statement is not removed. Usage by and fo
                                                                                            "The genome sequence of the food-borne pathogen reveals hypervariable sequences.";
Nature 403:665-668(2000)
                                                                                                                                                          STRAIN-NCTC 11168;

MEDLINE-20150912; PubMed=10688204;

Parkhill J., Wren B.W., Mungall K., Ketley J.M., Churcher C.,

Basham D., Chillingworth T., Davies R.M., Feltwell T., Holroy

Jagels K., Karlyshev A.V., Moule S., Pallen M.J., Penn C.W.,

Quail M.A., Rajandream M.A., Rutherford K.M., van Vliet A.H.N

Whitehead S., Barrell B.G.;
                                                                                                                                                                                                                                                                                                                                                                                       Campylobacter jejuni.
Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entities roor send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Haugwitz M., Noegel A.A., Rieger D., "Dictyostelium discoideum contains t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=92226170; PubMed=1725525;
                                     similarity).
-!- SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                      Campylobacter.
                                                                                                                                                                                                                                                                                                                                                                                                                                 NUSB OR CJ0382C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5-JUN-2002
5-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           39
                                                                                                                                                                                                                                                                                                                                                                                                                                                      utilization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            L; X61580; CAA437; S18028; FADO2.
P; P07763; 1ACF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IP3 AND DG.
SUBUNIT: OCCURS IN MANY KINDS
ACTIN IN A 1:1 RATIO.
SIMILARITY: BELONGS TO THE PRO
                                                                                  FUNCTION: Involved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AEGKAI 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AEGKAI
    SWISS-PROT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              requires a license agreement (S
an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                             (Rel. 41, Created,
(Rel. 41, Last sequence update)
(Rel. 41, Last annotation update)
on substance protein B homolog (NusB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAA43780.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STANDARD;
entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.8%;
100.0%;
  18
                                                                           in the transcription termination
                                        TO THE
copyright.
                                                                                                                                                                                                                                                                                                                                                                                       epsilon subdivision; Campylobacter group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          THE PROFILIN FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 6;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRT;
                                        NUSB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  읁
  It is
                                        FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CELLS AS A COMPLEX WITH MONOMERIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lottspeich
wo profilin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (See http://www.isb-sib.ch/announce/
produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                F., Schleicher M.; isoforms that differ
                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein).
                                                                                                                                         Campylobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      by and for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          restrictions on
                                                                                                                                                                                                      Holroyd
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FORMATION
                                                                              process
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   collaboration
                                                                                                                                           jejuni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'n
                                                                                                                                                                                                                           ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        commercial
                                                                                (B)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
```

밁 S

```
RESULT 21
RNHL_BACSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
       RX KEDILINE-98044033; PubMed=9384377;
RX KEDILINE-98044033; PubMed=9384377;
RA KUNST F., Ogasawara N., Moszer I., Albertini A.M., Alloni G.,
RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S.,
RA Azevedo V., Bertero M.G., Bessieres P., Bolotin A., Borchert S.,
RA Chois S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Chois S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Chini S.K., Codani J.J., Connerton I.F., Cummings N.J., Daniel R.A.,
RA Chini S.Y., Glaser P., Goffeau N., Fenrari E., Foulger D.,
RA Fritz C., Fujita M., Fujita Y., Fuma S., Galizzi A., Galleron N.,
RA Ghim S.Y., Glaser P., Goffeau N., Golightly E.J., Grandi G.,
RA Fritz C., Fujita M., Fujita Y., Fuma S., Galizzi A., Galleron N.,
RA Ghim S.Y., Glaser P., Goffeau N., Haiech J., Harwood C.R., Henaut A.,
RA Hilbert H., Holsappel S., Haga K., Haiech J., Harwood C.R., Henaut A.,
RA Hilbert H., Holsappel S., Koningstein G., Krogh S., Kumano M.,
RA Kurita K., Lapidus A., Liu H., Masuda S., Mauel C., Medigue C.,
RA Kurita K., Lapidus A., Liu H., Masuda S., Mauel C., Medigue C.,
RA Kurita K., Lapidus A., Liu H., Masuda S., Mauel C., Medigue C.,
RA Kurita N., Mellado R.P., Mizuno M., Moestl D., Nakai S., Noback M.,
RA Medina N., Mellado R.P., Mizuno M., Moestl D., Nakai S., Noback M.,
RA Parro V., Pohl T.M., Portettelle D., Porwollik S., Prescott A.M.,
RA Parescan E., Pujic P., Purnelle B., Rapoport G., Rey M., Reynolds S.,
RA Rieger M., Rivolta C., Rocha E., Roche B., Rose M., Sadaie Y.,
RA Sato T., Scanlan E., Schleich S., Schroeter R., Scoffone F.,
RA Seriguchi J., Sekowska A., Seror S.J., Serror P., Shin B.S., Soldo B.,
RA Tasarot V. Thirksha A., Tanka T., Takahashi H., Takamaru K.,
RA Tasarot V. Thirksha A., Seror S.J., Sernor P., Shin B.S.,
Soldo B.,
RA Tasarot V. Thirksha A., Seror S.J., Sernor P., Shin B.S.,
Soldo B.,
RA Seriguchi J., Sekowska A., Seror F., Vannier F., Vasgarotti A...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        between the Swiss Institute of Bioinformatics the European Bioinformatics Institute. There use by non-profit institutions as long as i modified and this statement is not removed. Us
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      "Sequence analysis of the Bacillus
the serA and kdg loci cloned in a y
Microbiology 142:2005-2016(1996).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RNHA.
Bacillus subtilis.
Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Transcription termination; SEQUENCE 132 AA; 14930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL; AL139075; CAB74218.1; HSSP; P04381; 1EY1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     01-OCT-1996
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR000139; NusB. Pfam; PF01029; NusB; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRAIN=168 / Marburg;
MEDLINE=96349105; PubMed=8760912;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14.7 kDa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RNHL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sorokin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               36 IELAKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BACSU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IELAKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A.V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ribonuclease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (Rel. 34,
(Rel. 34,
(Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.8%; So llarity 100.0%; I Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Azevedo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           < :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update)
Last annotation updat
H-like protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacillales; Bacillaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zumstein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 k; Score 6; DB 1
k; Pred. No. 81;
0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Complete proteome.
W; 521AD68C9E07A113
. .
Z H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          yeast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .
H:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          subtilis chromosome region be yeast artificial chromosome.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB
81;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Galleron N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 132;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ehrlich
                                                                                                                                                                                                                                     G.,
Henaut A.,
Tones L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S.D.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ņ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
RESULT
YGFX_EC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL; 177246; AAA96618.1; -. EMBL; 299115; CAB14117.1; -. HSSP; P00647; 1GOC. Subtilist; BG11608; rnhA. InterPro; IPR002156; RNaseH. Pfam; PP00075; rnaseH; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Viari A., Wambutt R., Winters P., Wipat A., Yoshida K., Yoshikawa H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           YGFX_ECC
Q46824;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LT 22
_ECOLI
    use by modified entities
                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercial modified and this statement is not removed. Usage by and for commercial modified and this statement is not removed.
                                                                                                                                                                                                                   SEQUENCE FROM N.A.

STRAIN=K12 / MG1655;

MEDLINE=97426617; PubMed=9278503;

Blattner F.R., Plunkett G. III, Bloch C.A., Perna N.T., Burl

Riley M., Collado-Vides J., Glasner J.D., Rode C.K., Mayhew

Gregor J., Davis N.W., Kirkpatrick H.A., Goeden M.A., Rose D

Mau B., Shao Y.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             15-JUL-1998 (Rel. 3
15-JUL-1998 (Rel. 3
16-OCT-2001 (Rel. 4
Hypothetical protei
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDLINE=99105810; PubMed=9888800; Ohtani N., Haruki M., Morikawa M., Crouch R.J., Itaya M., Kanaya Ohtani N., Haruki M., Morikawa M., Crouch R.J., Itaya M., Kanaya "Identification of the genes encoding Mn2+-dependent RNase HII from Bacillus subtilis: classification Mg2+-dependent RNase Hill from Bacillus subtilis: classification RNases H into three families:"; Biochemistry 38:605-618(1999).

-i- FUNCTION: NOT KNOWN; DOES NOT HAVE RNASE H ACTIVITY.

-i- SIMILARITY: BELONGS TO THE RNASE H FAMILY. EBSB SUBFAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      subtilis.
Nature 39
                                                                                                                                                                      Science
                                                                                                                                                                                            "The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                        Becherichia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Escherichia coli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Complete proteome. SEQUENCE 132 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CHARACTER I ZATION
                                                                                                                                                                                                                                                                                                                                                                                                        NCBI_TaxID=562;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YGFX OR B2896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        38
                                                                                                                                                                 complete genome sequence of Escherichia coli K-12."; nce 277:1453-1474(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _ECOLI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LAKEAI 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LAKEAI 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           390:249-256(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ΑA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14670 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ), Last sequence update)
), Last annotation update
ygfx.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequence of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wedler E., Wedler H., Weitzenegger T.,
Yamamoto H., Yamane K., Yasumoto K., Yata K.,
H.F., Zumatein E., Yoshikawa H., Danchin A.;
sequence of the Gram-positive bacterium Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 6; 1
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3D52E492BB541E15 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    135 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1
  (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1;
. Usage by and for commercial http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a M., Kanaya S.
RNase HII and
                                                                                                                                                                                                                                                                                      Burland
                                                                                              a collaboration - MBL outstation -
                                                                                                                                                                                                                                       D.J.,
                                                                                                                                                                                                                                                               Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0,
```

밁 S

```
RESULT 24
YE17_YEAST
ID YE17_YEAST
AC P40102;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT 23
RK16_CYACA
                                                                      밁
                                                                                           S
                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STARRAGO
                                                                                                                   Matches
                                                                                                                             Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local :
                                                                                                                                                             InterPro; IPR000114; Ribosomal L16.
Pfam; PF00252; Ribosomal L16; 1.
PRINTS; PR00060; RIBOSOMALL16.
TIGRFAMs; TIGR01164; rplp bact; 1.
PROSITE; PS00586; RTBOSOMAL_L16_1; 1.
PROSITE; PS00701; RIBOSOMAL_L16_2; 1.
PROSITE; PS00701; RIBOSOMAL_L16_2; 1.
Ribosomal protein; Chloroplast.
Ribosomal protein; Chloroplast.
SEQUENCE 140 AA; 15786 MW; CB748
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RK16 CY/
                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as 1s content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RPL16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        EMBL; U28375; AAA83077.1; -
EMBL; AE000373; AAC75934.1;
EcoGene; EG13074; ygfX.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cyanidium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eukaryota; Rhodophyta;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chloroplast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cyanidium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Chloroplast
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    16-OCT-2001
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BcoGene; EG13074; ygfX.

Hypothetical protein; Transmembrane; Corransmem 16 36 POTENTIAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     or send an email to
                                                                                                                                                                                                                                                          EMBL; AF022186; AAF12914.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=20496959; PubMed=11040290;
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=2771;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            16-OCT-2001
                                                                      112
                                                                                                                                                                                                                                                                                                                                                                                                                  The
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          117 AAVILL
                                                                                           37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                            oeckner G., Rosenthal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26
                                                                                                                                                                                                                                                                                                                                                                              MOI. EVOI. 51:382-390(2000).
SIMILARITY: BELONGS TO THE L16P FAMILY OF RIBOSOMAL PROTEINS
                                                                      ELAKEA
                                                                                            ELAKEA
                                                                                                                                                                                                                                                                                                                                                                                                                structure
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CYACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAVILL
                                                                                                                  Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   caldarium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135 AA;
                                                                                           42
                                                                                                                 2.8%;
ilarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Rel. 40, Created)
(Rel. 40, Last sequence update)
(Rel. 41, Last annotation update)
50S ribosomal protein L16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                and
             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                               gene repertoire
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         license@isb-sib.ch)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        16064 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bangiophyceae; Porphyridiales; Porphyridiaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                            A., Valentin
                                                                                                                           Score 6; D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0;
                                                                                                                  ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score 6;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .'
                                                                                                                                                                                                                                                _L16.
                                                                                                                 ore 6; DB 1;
Pred. No. 86;
Mismatches
                                                                                                                                                               CB748F6FB0B90C56 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CB3D38F10AAD1D98 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                유
             141
                                                                                                                                                                                                                                                                                                                                                                                                                            K.-U.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Complete proteome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB .
                                                                                                                                                                                                                                                                                                                                                                                                                an
                                                                                                                                                                                                                                                                                                                                                                                                                ancient
                                                                                                                                         ۲.
                                                                                                                  0;
                                                                                                                                        Length 140;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length 135;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>.</u>
                                                                                                                                                                                                                                                                                                                                                                                                                red
                                                                                                                  Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels
                                                                                                                                                                                                                                                                                                                                                                                                                algal
                                                                                                                                                                                                                                                                                                                                                                                                                plastid
                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                                                                  Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps
                                                                                                                  0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
```

```
P SEQUENCE FROM N.A.

P SEQUENCE FROM N.A.

C STRAIN=Rd / KW20 / ATCC 51907;

C STRAIN=Rd / KW20 / ATCC 51907;

X MEDLINE=95350630; PubMed=7542800;

XA Fleischmann R.D., Adams M.D., White O., Clayton R.A., Kirkness E.F.,

RA Kerlavage A.R., Bult C.J., Tomb J.-F., Dougherty B.A., Merrick J.M.,

RA MCKenney K., Sutton G., Fitzhugh W., Fields C.A., Gocayne J.D.,

RA MCKenney K., Sutton G., Fitzhugh W., Fields C.A., Kelley J.M.,

RA McKenney K., Shirley R., Liu L.-I., Glodek A., Kelley J.M.,

RA Weidman J.F., Phillips C.A., Spriggs T., Hedblom E., Cotton M.D.,

RA Weidman J.F., Fhillips C.A., Spriggs T., Glodek D.M., Brandon R.C.,

RA Utterback T.R., Hanna M.C., Nguyen D.T., Saudek D.M., Brandon R.C.,

Fine L.D., Fritchman J.L., Fuhrmann J.L., Geoghagen N.S.M.,

RA Fine L.D., McDonald L.A., Small K.V., Fraser C.M., Smith H.O.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SERVICE COCCOCCE PRESERVATION OF 
RRAPARA RAARA RAAR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 25
YHBC_HAEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    01-FEB-1995
01-FEB-1995
01-OCT-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          P45138;
01-NOV-1995 (Rel. 32, Created)
01-NOV-1995 (Rel. 32, Last sequence update)
15-JUN-2002 (Rel. 41, Last annotation updat
Hypothetical protein HI1282.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entropean Bioinformatics Institute. There are no restrate by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dietrich F.S., Mulligan J.T., Hennessey K.M., Allen E., Araujo Aviles E., Berno A., Brennan T., Carpenter J., Chen E., Cherry Chung E., Duncan M., Guzman E., Hartzell G., Hunicke-Smith S., Hyman R., Kayser A., Komp C., Lashkari D., Lew H., Lin D., Mosedale D., Nakahara K., Namath A., Norgren R., Oefner P., Ohpetel F.X., Roberts D., Sehl P., Schramm S., Shogren T., Smith Taylor P., Wei Y., Yelton M., Botstein D., Davis R.W.; Submitted (DEC-1994) to the EMBL/GenBank/DDBJ databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Fungi;
Saccharomycetales;
NCBI_TaxID=4932;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRAIN-S288c / AB972;
Dietrich F.S., Mulligan J.T., Hennessey K.M., Allen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Haemophilus.
NCBI_TaxID=727;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Hypothetical SEQUENCE 1
Science
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             YHBC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         u
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MAEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IDQIVA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IDQIVA 169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S0000989; YER187W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       U18922; AAB64714.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
269:496-512(1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          requires a license agreement (So
an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ll protein
141 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel.
(Rel.
(Rel.
(Rel.
1 15.4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.8%;
llarity 100.0%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        cerevisiae (Baker's yeast).
ngi; Ascomycota; Saccharomycotina; Sacch
ales; Saccharomycetaceae; Saccharomyces
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          31,
34,
38,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15395 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Last sequence update)
Last annotation update)
protein in ISC10 3'regi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gamma subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score 6; I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  670848EEA283E12E CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB
87;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ب
س
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pasteurellaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saccharomycetes;
                                                                   Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     by and for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   μ.
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              collaboration
L outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٠<u>٠</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ဌㅋㅋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       no
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match
Best Local S
Matches 6
EMBL; X03142; CAA2691
EMBL; W21411; AAA4965
PIR; A02453; HBXL2.
PIR; A24119; A24119.
PIR; A54492; A54492.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   modified
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This SWI
                                                                                                                                                                                                                                                                 [2]
SEQUENCE FROM N.A.
MEDLINE=87014375; PubMed=3020391;
Mararhof W., Koester M., Stalder
Mararhof W., Toria of the larval
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                      This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it use by non-profit institutions as long as its content is in no was modified and this statement is not removed. Usage by and for commercia entities requires a license agreement (See http://www.isb-sib.ch/announce or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                      Nucleic [2]
                                                                                                                                                                                                                                                                                                                                   MEDIINE=86067205; PubMed=2999708;
Knoechel W., Meyerhof W., Stalder J., Webe
"Comparative nucleotide sequence analysis
beta-globin mRNAs of Xenopus laevis.";
Nucleic Acids Res. 13:7899-7908(1985).
                                                                                                                                                                                                                                                                                                                                                                                                                                     Eukaryota; Metazoa; (Amphibia; Batrachia; Xenopodinae; Xenopus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P02133; P06644;
21-JUL-1986 (Rel. 01,
01-APR-1988 (Rel. 07,
16-OCT-2001 (Rel. 40,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hypothetical SEQUENCE 14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             InterPro; IPR003728; Di
Pfam; PF02576; DUF150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 EMBL; U32808; AAC22931.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              the
                                                                                                                                                                                                                                             Mol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HBB2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TIGR; HI1282;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Hemoglobin beta-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              +
                                                                                                                                                                                                                                                                                                                                                                                                                         NCBI_TaxID=8355;
                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           enopus laevis (African clawed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        199 QEQILV 204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               s SWISS-PROT entry is copyright. It is produced through a collab ween the Swiss Institute of Bioinformatics and the EMBL outst European Bioinformatics Institute. There are no restrictions by non-profit institutions as long as its content is in ified and this statement is not removed. Usage by and for content and the statement is not removed.
                                                                                                                                                                            . Biol. Rep. 11:155-161(1986).
FUNCTION: INVOLVED IN OXYGEN TRANSPORT FR
VARIOUS PERIPHERAL TISSUES.
SUBUNIT: HETEROTETRAMER OF TWO ALPHA CHAI
TISSUE SPECIFICITY: RED BLOOD CELLS.
SIMILARITY: BELONGS TO THE GLOBIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SIMILARITY: BELONGS TO THE UPF0090 FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                QEQILV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   XENLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     141 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               protein; Complete
                                       CAA26914.1; -.
AAA49653.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07, La
40, La
chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16108 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chordata; Craniata; Vertebrata; I
; Anura; Mesobatrachia; Pipoidea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DUF150.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ast annotation update)
(Minor) (Larval beta-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score
Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    proteome.
CC398AB847B886A3 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               frog).
                                                                                                                                                                                                                                                                                   .
.
                                                                                                                                                                                                                                                                        beta
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             update)
                                                                                                                                                                                                                                                                  Weber R., K
                                                                                                                                                                                                                                                                                   Weber
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                              Weber F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                        noved. Usage by and for commercial (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    beta-II-globin)
                                                                                                                                                                                                        CHAINS
                                                                                                                                                                                                                                 FROM
                                                                                                                                                                                                                                                                                                                                                              R.;
f two
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length 141;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                     Knoechel
n gene of
                                                                                                                                                                                                                                  THE
                                                                                                                                                                                                         AND
                                                                                                                                                                                                                                                                                                                                                               types
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Euteleostomi;
; Pipidae;
                                                                                                                                                                                                          OWI
                                                                                                                                                                                                                                 LUNG TO
                                                                                                                                                                                                                                                                                                                                                               of larval
                                                                                                                                                                                                                                                                        W.;
Xenopus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (B2G)
                                                                                                                                                                                                         BETA CHAINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EMBL outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           a collaboration
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                             collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                    way
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0
```

```
STAR BEST COCCOCCERTED BY STAR BEST STAR BY ST
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT
GLB_PAR
밁
                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STITERRE
                                                                                                      Query Match
Best Local
                                                                                        Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SULT 27
B_PAREP
GLB_PAREP
P80721;
01-NOV-1997
                                                                                                                                                                                                                                                                                                                                          Zhang W., Rashid K.A., Haque M., Siddiqi A.H., Vinogradov S.N.,
Moens L., la Mar G.N.;

"Solution of 1H NMR structure of the heme cavity in the oxygen-avid
myoglobin from the trematode Paramphistomum epiclitum.";

J. Biol. Chem. 272:3000-3006(1997).

-I- FUNCTION: OXYGEN BINDING PROTEIN.

-I- SUBUNIT: Monomer.

-I- SUBUNIT: Monomer.

-I- MASS SPECTROMETRY: MW=16643.2; MW ERR=1.58; METHOD=Electrospray.

-I- MISCELLANEOUS: THIS GLOBIN LACKS ONE OF THE HEME-BINDING HISTIDINE
RESIDUES FOUND IN MOST OTHER GLOBINS (REPLACED BY A TYROSINE) BUT
HAS AN EXTREME OXYGEN-AVIDITY AND HIGH OXIDATION RESISTANCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [2]
STRUCTURE BY NMR OF THE HEME POCKET RESIDUES
MEDLINE=97166614; PubMed=9006948;
Harue M., Siddiqi A.H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Vinogradov S.N., Moens L.; "Trematode myoglobins, functional m "Tsematode Tyoglobins, functional m J. Biol. Chem. 272:2992-2999(1997).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Heme;
                                                                                                                                                                            SEQUENCE
                                                                                                                                                                                                                    PROSITE; PS01
Heme; Oxygen
                                                                                                                                                                                                                                                                  Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rashid A.R., van
de Maeyer M., Gri
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=54403;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Platyhelminthes; Trematoda; Digenea; Echinostomida; Paramphistomidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Globin-3 (Myoglobin).
Paramphistomum epiclitum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         01-NOV-1997
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000971; Globin.
Pfam; PF00042; globin; 1.
PROSITE; PS01033; GLOBIN; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE=97160613; PubMed=9006947;
                                                                                                                                                                                                                                                                                     InterPro; IPR000971; Globin.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               136
125
                                       157 DAEGKA 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       175 VLVDGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Local
                                                                                                                                                                                                                                                                                                        DESPITE THIS CHANGE.
SIMILARITY: BELONGS TO THE GLOBIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VLVDGL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEH
DAEGKA
                                                                                                                                                                                                                                                              PF00042; globin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        P02100;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Oxygen transport; Transport; Erythrocyte
                                                                                   Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Similarity 6; Conser
                                                                                                                                                                                                                                           PS01033; GLOBIN; 1.
                                                                                                                                                                          147 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           146 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               141
130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative
                                                                                      Conservative
                                                                                                                                                                                            transport; Transport.
98 98 IRON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      van Hauwaert M.-L., Haque M., Sido
Griffon N., Marden M.C., Dewilde
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             35, Created)
35, Last sequence update)
41, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63 II
92 II
15841 MW;
                                                                                                                                                                          16639 MW;
                                                                                                        2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.8%;
                                                                                   0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0;
                                                                                                        Score 6; |
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IRON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 6;
Pred. No.
                                                                                                                                                                       BA5062C05B8DEE3D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BB53347CA9BFFAEA CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches
                                                                                 Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            molecules with
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (HEME DISTAL LIGAND). (HEME PROXIMAL LIGAND).
                                                                                                                                                                                               (HEME PROXIMAL LIGAND).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               147
                                                                                             DB
90;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DB .
                                                                                                                                                                                                                                                                                                          FAMILY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ₿
                                                                                                                             ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Siddiqi A.H., Lasters I., ilde S., Clauwaert J.
                                                                                 <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0;
                                                                                                                           Length 147;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length 146;
                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            a distal tyrosine.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels
                                                                                   Indels
                                                                                 <u>,,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                               0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
```

RESULT

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEA THE GROUP OF THE SEA THE S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SULT 29
9_STRPN
                                                                                                                   Tettelin H., Nelson K.E., Paulsen I.T., Eisen J.A., Read T.D., Peterson S., Heidelberg J., DeBoy R.T., Haft D.H., Dodson R.J., Durkin A.S., Gwinn M., Kolonay J.F., Nelson W.C., Peterson J.D., Umayam L.A., White O., Salzberg S.L., Lewis M.R., Radune D., Holtzapple E., Khouri H., Wolf A.M., Utterback T.R., Hansen C.L., McDonald L.A., Feldblyum T.V., Angiuoli S., Dickinson T., Hickey Holt I.E., Loftus B.J., Yang F., Smith H.O., Venter J.C., Dougherty B.A., Morrison D.A., Hollingshead S.K., Fraser C.M., "Complete genome sequence of a virulent isolate of Streptococcus pneumoniae.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUN-2002
15-JUN-2002
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            METVO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE FROM N.A.
STRAIN-DSM 1537 / PS;
Bayley D.P. Jarrell K.F.;
Submitted (APR-1997) to the EMBL/GenBank/DDBJ
-!- SIMILARITY: STRONG, TO M.JANNASCHII FLAG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               EMBL; U97040; AAB57831.1; Flagella; Transmembrane. TRANSMEM 9 29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15-JUL-1998 (Rel. 36, Creation 15-JUL-1998 (Rel. 36, Last 15-JUL-1998 (Rel. 36, Last Putative flagella-related
                                               Science 293:498-506(2001).
-!- FUNCTION: Binds to the
-!- SIMILARITY: BELONGS TO
                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN=TIGR4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RPLI OR SP2204.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         50S ribosomal protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   entities requires a license agreement (Some send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Archaea; Euryarchaeota; Methanococci; Methanococcales; Methanococcaceae; Methanococcus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Methanococcus voltae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          006640;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FLAG_
                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=21357209; PubMed=11463916;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=1313;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Streptococcus pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NCBI_TaxID=2188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174 SVLVDG 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRPN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SVLVDG
SWISS-PROT entry is copyright.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    METVO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       150 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (Rel. 41, (Rel. 41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16174 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Last
L9.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Created)
Last sequ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Last sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lactobacillales; Streptococcaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein
                                            23S rRNA (By similarity).
THE L9P FAMILY OF RIBOSOMAL PROTEINS.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score 6;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       POTENTIAL.
; 40FF4E641A0D5B82 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches
  H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150 AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DB 1;
5. 92;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
  18
  produced through a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 150;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps
                                                                                                                                                                                                                               Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
```

밁 Ś

밁 S

```
YKH2_CAEE
                                                       Query Match
Best Local S
Matches 6
 Query Match
Best Local Similarity
                                                   EMBL; L23649; AAA27910.1; -
PIR; S44740; S44740.
WormPep; CO2CC.2; CE00028.
Hypothetical protein.
SEQUENCE 152 AA; 16606 M
                                                                                                                                                                                                                                                                                                                                                                              Sims M., Smaldon N., Smit
Sulston J., Thierry-Mieg
Waterston R., Watson A.,
                                                                                                                                                                                                                                                                                                                                                                                  Wilson R., Ainscough R., Anderson K., Baynes C., Berks M.,
Bonfield J., Burton J., Connell M., Copsey T., Cooper J., Coulson A.
Craxton M., Dear S., Du Z., Durbin R., Favello A., Fraser A.,
Fulton L., Gardner A., Green P., Hawkins T., Hillier L., Jier M.,
Johnston L., Jones M., Kershaw J., Kirsten J., Laisster N.,
Johnston L., Jones M., Kershaw J., Kirsten J., Laisster N.,
Latreille P., Lightning J., Lloyd C., Mortimore B., O'Callaghan M.,
Parsons J., Percy C., Rifken L., Roppra A., Saunders D., Shownkeen E.,
Sims M., Smaldon N., Smith A., Smith M., Sonnhammer B., Staden R.,
Sulston J., Thierry-Mieg J., Thomas K., Vaudin M., Vaughan K.,
Waterston R., Watson A., Weinstock L., Wilkinson-Sproat J.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAEEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entitles requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PROSITE; PS00651; RIBOSOMAL L9; 1.
Ribosomal protein; rRNA-binding; Complete proteome.
SEQUENCE 150 AA; 16523 MW; 31EDBD26CF0662F1 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL; AE007508; AAK76255.1; -. TIGR; SP2204; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Caenorhabditis elegans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-FEB-1994
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P34270;
01-FEB-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pfam; PF01281; Ribosomal_L9; TIGRFAMs; TIGR00158; L9; 1.
                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entre the European Bioinformatics Institute. There are no restrate by non-profit institutions as long as its content modified and this statement is not removed. Usage by an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MEDLINE=94150718; PubMed=7906398;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN=Bristol N2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa; Nemat
Rhabditidae; Peloderinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       InterPro; IPR000244; Ribosomal_L9.
                                                                                                                                                                                                                                                                                                                Nature 368:32-38(1994).
                                                                                                                                                                                                                                                                                                                                                                     Wohldman P.
                                                                                                                                                                              entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                  "2.2 Mb of contiguous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KH2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           158 AEGKAI 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         63
                                                                                                                                                                 send
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAEEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity 6; Conserv
                                                                                                                                                               an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (Rel. 28, Created)
(Rel. 28, Last sequence update)
(Rel. 41, Last annotation update)
1 protein C02C2.2 in chromosome III.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.8%; Silarity 100.0%; Conservative 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Nematoda;
                                                       16606 MW;
                                                                                                                                                                                                                                                                                                                                                    nucleotide
                   2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              oda; Chromadorea; Rhabditida; Rhabditoidea; Caenorhabditis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ; Score 6; DB 1
%; Pred. No. 92;
0; Mismatches
Score 6;
Pred. No.
                                                       2DEBF75533A121BB CRC64;
                                                                                                                                                                                                                                                                                                                                                  sequence from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DB 1;
). 92;
 DB 1;
                                                                                                                                                                                                                                       There are no restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length 150;
                 Length 152;
                                                                                                                                                                                                                                                                                                                                                    chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Indels
                                                                                                                                                                                                     and
                                                                                                                                                                                                                                                            EMBL
                                                                                                                                                                                                                                                                                                                                                      III
                                                                                                                                                                                                                                                                           a collaboration
                                                                                                                                                                                                       for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                            outstation
                                                                                                                                                                                                                                                                                                                                                      of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps
                                                                                                                                                                                                       commercia.
                                                                                                                                                                                                                                       g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
                                                                                                                                                                                                                    EMBL; Y00401; CAA68
EMBL; X77043; CAA54
EMBL; U50083; AAC04
PIR; A02561; GPYL.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bioorg. Khim. 2:123-12-18 Bioorg. Bioorg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Nucleic
[2]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LGB1_LU
P02239;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAIN=cv. Ventus;
Strozycki P.M., Karlowski W.M., Legocki A.B.;
"Yellow lupine gene coding for leghemoglobin I.";
(In) Plant Gene Register PGR98-017.
                                                                                                                                                                                                                                                                                                                                  use by non-profit institutions as long modified and this statement is not removed. entitles requires a license agreement (See or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=CV. vc...
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosid eurosids I; Fabales; Fabaceae; Papillonoideae; Genisteae; Lupinus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21-JUL-1986
01-FEB-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DTADT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Egorov T.A., Feigina M.Y., Mimaleva S.I., Ovchinnikov "The complete amino acid se
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Submitted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Konieczny A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NCBI_TaxID=3873;
                                                                                                                                                                                                                                                                                                                                                                                                                                                This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SEQUENCE.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "Nucleotide sequence of lupin leghemoglobin I cDNA.";
Nucleic Acids Res. 15:6742-6742(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=87316940;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lupinus luteus (Yellow lupine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Leghemoglobin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                             the European Bioinformatics Institute.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               rissue=Root nodules;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         upin root nodules."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   essential for symbiot
- SUBUNIT: MONOMER.
- TISSUE SPECIFICITY: H
- SIMILARITY: BELONGS T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DIGIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AILKIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AILKIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ٠.
و
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (JAN-1994)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ventus; TISSUE=Root nodules;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (Rel. 01, Created)
(Rel. 17, Last seq
(Rel. 41, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Res.
                                                                                                                                                                                                                                                                   CAA68462.1; -. CAA54332.1; -.
                                                                                                                                                                                                                                                AAC04853.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2:125-128(1976).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PubMed=3628011;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Root nodules.
TO THE PLANT GLOBIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kazakov V.K.,
Y.A.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         annotation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nitrogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      EMBL/GenBank/DDBJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               to the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ō£,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            bacteroids. fixation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                the leghemoglobin I from yellow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         update)
                                                                                                                                                                                                                                                                                                                                                                                                        There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Shakhparonov M.I.,
                                                                                                                                                                                                                                                                                                                                                              . Usage by and for commercial http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          databases.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      role
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0,
                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0
```

InterPro; IPR000971; Globin.
InterPro; IPR001032; Leghaemoglobin.
Pfam; PF00042; globin; 1.
PRINTS; PR00188; PLANTCLOBIN.
PROSITE; PS00208; PLANT GLOBIN; 1.
PROSITE; PS01033; GLOBIN; 1.

Transport; Nitrogen fixation

PIR; A26808; A26808. PIR; S41327; S41327.

P02240;

or send an email to license@isb-sib.ch).

```
RESULT 32
LGB2_LUPLU
ID LGB2_L
 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                XFFFFFFF X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Matches
           This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EN the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P02240;
21-JUL-1986
01-NOV-1988
15-JUN-2002
                                                                                                                                                   MEDLINE-75118996; PubMed=1118009; Vainshtein B.K., Harutyunyan E.H., Kuranova I.P., Borisov V.V Sosfenov N.I., Pavlovsky A.G., Grebenko A.I., Konareva N.V.; "Structure of leghaemoglobin from lupin root nodules at 5-A resolution.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CONFLICT
CONFLICT
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Multigene
INIT MET
METAL
                                                                                                                                          Nature 254:163-164(1975).
                                                                                                                                                                                                                                             X-RAY CRYSTALLOGRAPHY (2.0 ANGSTROMS).
Arutiunian E.G., Kuranova I.P., Vainabtein B.K., Steigemann W.,
"X-ray structural investigation of leghemoglobin. VI. Structure
acetate-ferrileghemoglobin at a resolution of 2.0 A.",
sov. Phys. Crystallogr. 25:43-52(1980).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Rosideurosids I; Fabales; Fabaceae; Papilionoideae; Genisteae; Lupinus.
                                                                                                                                                                                                             TISSUE=Root nodules;
                                                                                                                                                                                                                                                                                                                      "Molecular cloning of lupin le
                                                                                                                                                                                                                                                                                                                               Konieczny A., Jensen E.O., Marcker K.A., I
                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE OF 61-153 FROM N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Egorov T.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                    TISSUE=Root nodules;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=3873;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            METAL
                                                                                                                                                                                                                        K-RAY CRYSTALLOGRAPHY (5.0 ANGSTROMS)
                                                                                                                                                                                                                                                                                                                                                       MEDLINE=87315070; PubMed=2442601;
                                                                                                                                                                                                                                                                                                                                                                                          "Primary structure of leghemoglobin lupin (Lupinus luteus L.)."; Bioorg. Khim. 4:476-480(1978).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Leghemoglobin II.
Lupinus luteus (Y
                                                                                                                                                                                                                                                                                                                                                                                                                           Costetsky P.V.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    111
                                                                           I- FUNCTION: Provides oxygen tesential for symbiotic nit SUBUNIT: MONOMER.
I- TISSUE SPECIFICITY: Root no SIMILARITY: BELONGS TO THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   KEAILK 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEAILK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _TABTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 family.
0
63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (Rel.
(Rel.
                                                                                                                                                                                                                                                                                                                                                                                                                                       Kazakov V.K.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (Yellow lupine).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          79
120
license agreement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                16622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Last sequence up
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MW;
                                                                                THE
                                                                                                                                                                                                                                                                                                                                                                                                                                      Shakhparonov M.I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                 nitrogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          щO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IRON (HEME DISTAL LIGAND)
(BY SIMILARITY).
IRON (HEME PROXIMAL LIGAND)
(BY SIMILARITY).
                                                                                                                           g
                                                                               PLANT GLOBIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BY SIMILARITY).
-> B (IN REF. 4).
-> G (IN REF. 1).
F130A15E282F1F5D CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches
                                                                                                                              the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   e 6;
No.
                                                                                                                                                                                                                                                                                                                                                                                                                Η
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      update)
                                                                                                                 bacteroids. fixation.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153
noved. Usage by and for commercial (See http://www.isb-sib.ch/announce,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DB 1;
         There are no restrictions ng as its content is in ved. Usage by and for com
                                                                                                                                                                                                                                                                                                                                                                                                                from the nodules of the yellow
                                                                                                                                                                                                                                                                                                                                 Legocki A.B.;
n cDNA.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                       Feigina M.Y.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length 153;
                                                                                                                              This role
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Indels
                                                                                                                                                                                      Borisov V.V.,
                                              EMBL outstation
                                                        a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Rosidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                       e
f
                      100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
```

```
RESULT 33
NUSB_FUSNN
RR ROCC GOT DOT AC
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 $\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\text{$\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 6
                                                                                                                                -NUSB FUSAN STANDARD;

QBRII1;

15-JUN-2002 (Rel. 41, Cre

15-JUN-2002 (Rel. 41, Las

15-JUN-2002 (Rel. 41, Las

N utilization substance p

NUSB OR FN1616.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TURN
HELIX
HELIX
TURN
HELIX
HELIX
HELIX
HELIX
TURN
HELIX
HELIX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CONFLICT
CONFLICT
CONFLICT
CONFLICT
HELIX
STRAIN=ATCC 25586
                                                                                      Fusobacterium nucleatum Bacteria; Fusobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQUENCE FROM N.A
                                                             NCBI_TaxID=76856;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pfam; PF00042; globin; I.
PRINTS; PR00188; PLANTGLOF
PROSITE; PS00208; PLANT GI
PROSITE; PS01033; GLOBIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 InterPro
                                                                                                                                                                                                                                                                                                                                                                                                        111
                                                                                                                                                                                                                                                                                                                                                                                                                                                     40 KEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HADDE SEP - 83

HADDE SEP - 83
                                                                                                                                                                                                                                                                                                                                                                                                        KEAILK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Oxygen transport;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            M17893;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IPR000971; Globin.
IPR001032; Leghaemoglobin.
                                                                                                                                                                               (Rel. 41, Created)
(Rel. 41, Last seq
(Rel. 41, Last ann
                                                                                                                                                                                                                                                                                                                                                                                                        116
                                                                                                                                                                                                                                                                                                                                                                                                                                                  45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            153 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           61
79
86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20
22
38
38
45
58
88
100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Multigene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAA33410.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLANTGLOBIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PLANT_GLOBIN;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     61
79
86
150
19
21
36
43
49
81
101
125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.8%; 5c
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               16652 MW; FE29AB9DEF33AFC8 CRC64;
                                                                                                                                                                                    Last sequence u
                                                                                           (subsp. nucle
Fusobacterium
                                                                                                                                                           protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transport; Nitrogen fixation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Score 6; DB 1; Pred. No. 93; 0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IRON (HEME DISTAL LIC
(BY SIMILARITY).
IRON (HEME PROXIMAL I
(BY SIMILARITY).
Q -> AS (IN REF. 2; A
Q -> E (IN REF. 1).
T -> S (IN REF. 1).
N -> D (IN REF. 1).
                                                                                                                 nucleatum)
                                                                                                                                                                W
                                                                                                                                                           homolog
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HEME DISTAL LIGAND)
                                                                                                                                                                                                          update)
                                                                                                                                                                                                                                                                               153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DB 1;
                                                                                                                                                                                      update)
                                                                                                                                                                (NusB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           7. 2; AAA33410).
1).
1).
1).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length 153;
                                                                                                                                                              protein).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LIGAND)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
```

```
RESULT 34
YBEY_HAEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SON DECCRETED AND SON DECCRETED AND SON DECCRETED AND SON DECRETED AND SON DECEMBER OF SON DEC
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Matches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Bhattacharyya A., Bartman A., Gardner W., Grechkin G., Zhu L., Vasieva O., Chu L., Kogan Y., Chaga O., Goltsman E., Bernal A., Larsen N., D'Souza M., Walunas T., Pusch G., Haselkorn R., Fonstein M., Kyrpidas N., Overbeek R.; "Genome sequence and analysis of the oral bacterium Fusobacterium nucleatum strain ATCC 25586.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               YBEY HAEIN
P71335;
01-NOV-1997
01-NOV-1997
15-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE FROM N.A.

STRAIN-Ed / KW20 / ATCC 51907;

MEDLINE-95350630; PubMed-7542800;

Fleischmann R.D., Adams M.D., White O., Clayton R.A., Kirkness E.F.,

Kerlavage A.R., Bult C.J., Tomb J.-F., Dougherty B.A., Merrick J.M.,

McKenney K., Sutton G., Fitzhugh W., Fields C.A., Gocayne J.D.,

Scott J.D., Shirley R., Liu L.-I., Glodek A., Kelley J.M.,

Scott J.D., Shirley R., Liu L.-I., Glodek A., Kelley J.M.,

Weidman J.F., Phillips C.A., Spriggs T., Hedblom E., Cotton M.D.,

Utterback T.R., Hanna M.C., Nguyen D.T., Saudek D.M., Brandon R.C.,

Fine L.D., Fritchman J.L., Fuhrmann J.L., Geoghagen N.Sm.,

Gnehm C.L., McDonald L.A., Small K.V., Fraser C.M., Smith H.O.,

Wenter J.C.;
                 This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HAEIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on it
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; AE010469; AAL93731.1; -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       similarity).
-!- SIMILARITY: BELONGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             J. Bacteriol. 184:2005-2018(2002).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=21886394; PubMed=11889109;
                                                                                                                                                                                                                                                   Science 269:496-512(1995).
-i- SIMILARITY: BELONGS TO THE UPF0054 FAMILY. STRONG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bacteria; Proteobacteria; Haemophilus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Haemophilus influenzae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hypothetical HI0004.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Transcription
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                         "Whole-genome random sequencing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NCBI_TaxID=727;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126 ÌELAKE 131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       36 IELAKE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (Rel. 35, Created)
(Rel. 35, Last sequence update)
(Rel. 41, Last annotation updat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein HI0004.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          termination; Cor
3 AA; 17516 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.8%; 5u
100.0%; Pr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TO THE NUSB FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gamma subdivision; Pasteurellaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Complete proteome.
W; 3DABEEBDD82BE898 CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score 6;
Pred. No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRT;
                                                                                                                                                                                                                                                                                                                                            and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches
                                                                                                                                                                                                                                                                                                                                         assembly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                termination
                                                                                                                                                                                                                                                                                                                                            of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length 153;
                                                                                                                                                                                                                                                                                                                                         Haemophilus influenzae
                                                                                                                                                                                                                                                         ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                process
                                                                                                                                                                                                                                                      E.COLI YBEY.
                                                                                                                                                                      a collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    collaboration -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (By
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Α.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0
```

```
RESULT 35

RS5_BUCAK
ID RS5_B
AC P46\bar{1}\bar{1}\bar{2}\bar{1}\bar{2}\bar{1}\bar{2}\bar{1}\bar{2}\bar{1}\bar{2}\bar{2}\bar{1}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\bar{2}\
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 6
                                                                    Query Match
Best Local S
Matches 6
                                                                                                                                                                                                            InterPro; IPR000463; Fatty_acid_BP.
InterPro; IPR002132; Ribosomal_E5.
InterPro; IPR000851; Ribosomal_S5.
InterPro; IPR005324; Ribosomal_S5.
InterPro; IPR005324; Ribosomal_S5_C.
Pfam; PF00333; Ribosomal_S5; 1.
Pfam; PF03719; Ribosomal_S5_C; 1.
TIGRFAMS; TIGR01021; rpsE_bact; 1.
PROSITE; PS00585; RIBOSOMĀL_S5; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           P46Ī83; Q44082;
01-NOV-1995 (Rel. 32, 0
30-MAY-2000 (Rel. 39, 1
30-MAY-2000 (Rel. 39, 1
                                                                                                                                                                                                                                                                                                                                                                                                          EMBL; D31786;
EMBL; D16555;
HSSP; P02357;
                                                                                                                                                                  Ribosomal
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Abe R., Yamashita A., Isono K.;
"Cloning and characterization of the ribosomal protein gen
spc operon of a prokaryotic endosymbiont of the pea aphid,
Acyrthosiphon kondoi.";
DNA Res. 1:103-114(1994).
-i- FUNCTION: PROTEIN SS IS IMPORTANT IN THE ASSEMBLY AND
THE 30S RIBOSOMAL SUBUNIT (BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TIGREAMS; TIGRO0043; UPF0054; 1.

PROSITE; PS01306; UPF0054; 1.

Hypothetical protein; Complete proteome.

SEQUENCE 154 AA; 17355 MW; C066F7AB7F9CA7AD CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    InterPro; IPR002036; UPF0054. Pfam; PF02130; UPF0054; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   EMBL; U32686; AAC21683.1; TIGR; HI0004; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A STRAIN=Kurashiki;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Buchnera aphidicola (subsp. kondoi symbiotic bacterium).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProDom; PD005688; UPF0054; 1.
168 VALNSG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MEDLINE=96051390;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173 GSVLVD 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 GSVLVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              max-2000 (Rel. 39, Last annotation ribosomal protein S5.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SIMILARITY: BELONGS TO THE S5P FAMILY OF RIBOSOMAL PROTEINS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BUCAK
                                                                    . Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 6; Conserv
                                                                                                                                                                                        protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Proteobacteria;
                                                                                                                                                                     166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative
                                                                       Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     N.A.
                                                                                                                                                                                                                                                                                                                                                                                                            1PKP.
                                                                                                                                                                                                                                                                                                                                                                                                                                  BAA06592.1; ALT_SEQ.
BAA03984.1; -.
                                                                                                                                                                     AA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PubMed=7584036;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2.8%;
                                                                                                                                                                     17387
                                                                                             2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Created)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Last sequence update
                                                                                                                                                                     MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gamma subdivision;
                                                                                                Score 6;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Acyrthosiphon kondoi) (Acyrthosiphon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0; Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Score
Pred.
                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRT;
                                                                                                                                                                       EDEEBAF9BA72CB92
                                                                         Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.
                                                                                                  Ö.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           166 AA
                                                                                                DB 1; 1
o. 1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB 1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (See
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                . Usage by and for commercial http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Buchnera
                                                                                                                   Length 166;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length 154;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0
                                                                                                                                                                       CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          genes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FUNCTION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0
                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'n
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps
                                                                         Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0
                                                                            0,
```

밁

74

VALNSG

```
RESULT 37
REGA_RHOSH
                                                                                                                                                                                                         RESULT 36
                                                                                                             밁
     55555
                                                                                                                                 S
                                                                                                                                                        Query Match
Best Local S
Matches 6
 REGA RHOSH (253227; Q53227; 30-MAY-2000 (Rel 16-OCT-2001 (Rel 15-JUN-2002 (Rel
                                                                                                                                                                                                       DISULFID
DISULFID
CARBOHYD
SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            029055;
01-NOV-1997 (Rel. 35, Created)
01-NOV-1997 (Rel. 35, Last sequence update)
15-DEC-1998 (Rel. 37, Last annotation update)
Interleukin-10 precursor (IL-10) (Cytokine synthesis inhibitory
                                                                                                                                                                                                                                                                   SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                the European Bioinformatics Institute. There are no rest
use by non-profit institutions as general as its content
modified and this statement is not removed. Usage by an
entities requires a license agreement (See http://www.isb-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            This
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               expression in a kidney allograft model.",

Proc. Natl. Acad. Sci. U.S.A. 92:2800-2804(1995).

PIOCTION: INHIBITS THE SYNTHESIS OF A NUMBER OF
INCLUDING IFN-GAMMA, IL-2, IL-3, TNF AND GM-CSF
ACTIVATED MACROPHAGES AND BY HELPER T CELLS (BY
-1- SUBUNIT: HOMODIMER (BY SIMILARITY).

-1- SUBCELLULAR LOCATION: Secreted.

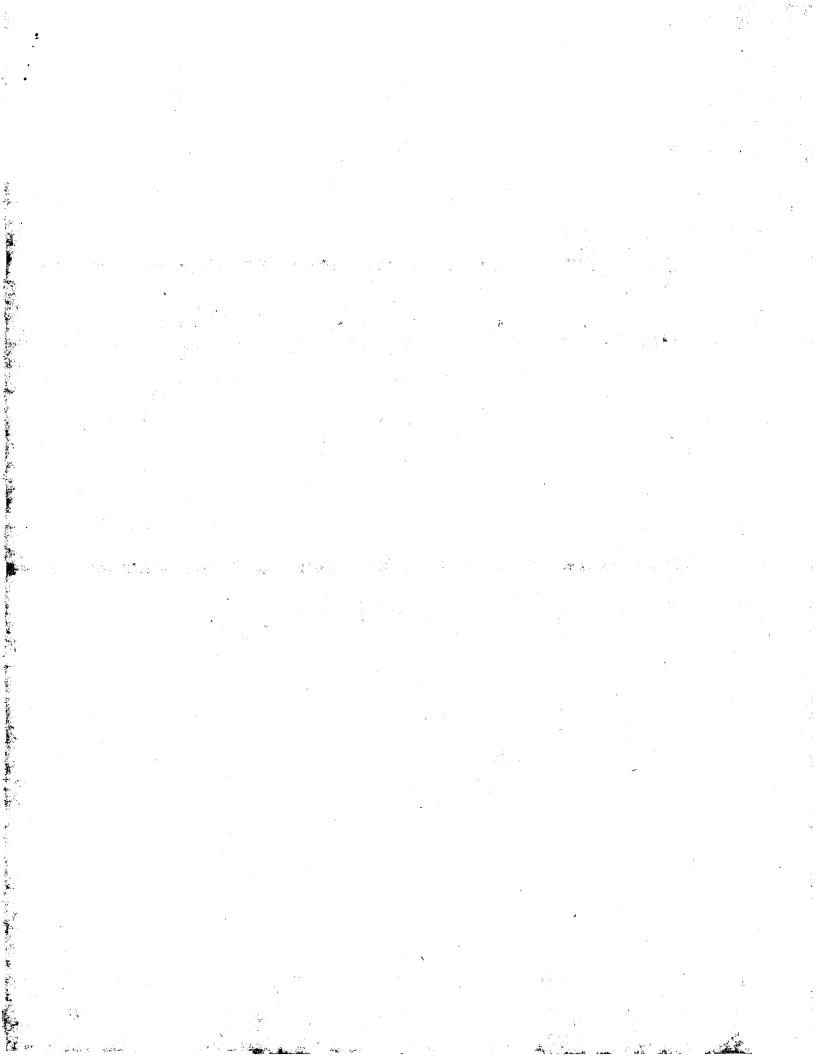
-1- SIMILARITY: BELONGS TO THE IL-10 FAMILY.
                                                                                                                                                                                                                                                                                                     PRINTS; PR01294; INTRLEUKIN10.
ProDom; PD003687; Interleukin_10;
SMART; SM00188; IL10; 1.
                                                                                                                                                                                                                                                                                                                                                                 EMBL; L20001; AAA74410.1; -. HSSP; P22301; 1INR.
                                                                                                                                                                                                                                                                                                                                                                                                    entities requires a license agreement (S or send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM N.A. TISSUE=Spleen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IL10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                between
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Leguern C., molecular identification of porcine interleukin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Blancho
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NCBI_TaxID=9823;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sus scrota (Pig).
                                                                                                                                                                                                                                                                                          PROSITE;
                                                                                                                                                                                                                                                                                                                                         InterPro; IPR000098; Interleukin_10.
Pfam; PP00726; IL10; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDLINE=95224028;
                                                                                                             135
                                                                                                                                  134
                                                                                                                                                                                                                                                                                /tokine;
                                                                                                                            VEEVKS
                                                                                                                                                                                                                                                                                                                                                                                                                                               SWISS-PROT entry is copyright. It is produced through a coilaboration een the Swiss Institute of Bioinformatics and the EMBL outstation - European Bioinformatics Institute. There are no restrictions on its
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _PIG
                                                                                                             VEEVKS
                                                                                                                                                          Similarity 6; Conser
                                                                                                                                                                                                                                                                            ; Glycoprotein; Signal.
                                                                                                                                                                                                      130
175
 (Rel.
                                                                                                                                   139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gianello
                                                                                                                                                        2.8%; Score 6; DB
larity 100.0%; Pred. No. 1.
Conservative 0; Mismatches
                                                                                                                                                                                                         Ā,
                                                  STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STANDARD;
  40,
41,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PubMed=7708727;
                                                                                                                                                                                                                  175
122
128
130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chordata; Craniata; Vertebrata;
Cetartiodactyla; Suina; Suidae;
                                                                                                                                                                                                        19934 MW;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۳
;
Created)
Last sequence update)
Last annotation update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Germana
                                                                                                                                                                                                                  INTERLEUKIN-10.
BY SIMILARITY.
BY SIMILARITY.
N-LINKED (GLCNAC.
                                                                                                                                                                                                                                                                   POTENTIAL
                                                                                                                                                                                                        DB85B9984C1570BF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                 1
                                                  184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Baetscher M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    175
                                                                                                                                                                                                                                                                                                                                                                                                              (See
                                                                                                                                                                 DB 1; Ler
>. 1.1e+02;
                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                              . Usage by and for http://www.isb-sib
                                                                                                                                                                              Length 175;
                                                                                                                                                                                                        CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    F CYTOKINES, F PRODUCED BY SIMILARITY).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sachs D.H.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Euteleostomi;
Sus.
                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             regulation
                                                                                                                                                                                                                                                                                                                                                                                                                            for
                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                                .ch/announce/
                                                                                                                                                      Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of.
                                                                                                                                                                                                                                                                                                                                                                                                                            commercia:
                                                                                                                                                                                                                                                                                                                                                                                                                                      ņ
                                                                                                                                                       0
```

```
RESULT
FGF4 MC
ID FG
AC P1
DT 01
DT 15
                                                                                                                           뭉
                                                                                                                                                 Ś
                                                                                                                                                                                                                                     Query Match
Best Local Similarity
Matches 6; Conserv
 4_MOUSE
FGF4_MOUSE
911403; P15657;
01_JUL-1989 (Rel
01_JUL-1989 (Rel
15_JUN-2002 (Rel
                                                                                                                                                                                                                                              TIGREAMS; TIGR01199; HTH_fis; 1.
PROSITE; PS50110; RESPONSE REGULATORY; 1.
Sensory transduction; Phosphorylation; Tr
DNA-binding; Activator.
DOMAIN 14 128 RESPONSE REG
                                                                                                                                                                                                                                                                                                                                                                       EMBL; X76559; CAA54059.2;
EMBL; L25895; AAA16649.1;
HSSP; P10958; 1DBW.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     photosynthesis gene expression in Rhodobacter sphaeroides.";
J. Bacteriol. 176:32-43 (1994).
-i. FUNCTION: MEMBER OF THE TWO-COMPONENT REGULATORY SYSTEM REGB/REGI-INVOLVED IN TRANSACTIVATING ANAEROBIC EXPRESSION OF THE PHOTOSYNTHETIC APPARATUS. IT IS A TRANSCRIPTIONAL REGULATOR THAT IS RESPONSIBLE FOR ACTIVATING EXPRESSION OF THE PUF, PUH, AND PUCOPERONS IN RESPONSE TO A DECREASE IN OXYGEN TENSION.
-i. PTM: PHOSPHORYLATED BY REGB (PROBABLE).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REGA OR PRRA.
Rhodobacter sphaeroides (Rhodopseudomonas sphaeroides).
Bacteria; Proteobacteria; alpha subdivision; Rhodobacter
                                                                                                                                                                                                                                     SEQUENCE
                                                                                                                                                                                                                                                                                                                 ProDom; PD000039; Res
SMART; SM00448; REC;
                                                                                                                                                                                                                                                                                                                              InterPro; IPR001789; Response reg.
Pfam; PF00072; response_reg; 1.
ProDom; PD000039; Response_reg; 1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        the European Bioinformatics Institute. The use by non-profit institutions as long modified and this statement is not removed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  This SWISS-PR
between the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eraso J.M., Kaplan S.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REVISIONS TO 98; 180 Phillips-Jones M.K.; Submitted (NOV-2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     "Cloning and nucleotide sequence of regA, regulator gene of Rhodobacter sphaeroides. FEMS Microbiol. Lett. 116:269-275(1994).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Phillips-Jones M.K., Hunter C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM N.A.
STRAIN-ATCC 17023 / 2.4.1 / NCIB
MEDLINE-94237424; PubMed=8181698;
                                                                                                                                                                                                                                                                                                                                                                                                                                             entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE=94110238;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STRAIN=ATCC 17023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Photosynthetic apparatus regulatory protein regA (Response regulator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 "prrA, a
                                                                                                                                                   158 AEGKAI
                                                                                                                           46
                                                                                                                                                                                                                                                                                                                                                                                                                               tities requires a license agreement (S send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SIMILARITY: CONTAINS 1 RESPONSE REGULATORY DOMAIN.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SWISS-PROT entry is copyright. It is produced through een the Swiss Institute of Bioinformatics and the EW
                                                                                                                           AEGKAI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TaxID=1063;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   putative response regulator involved thesis gene expression in Rhodobacter
                                                                                                                                                                                                                                     184
                                                                                                                                                  163
(Rel. 11, Created)
(Rel. 11, Last sequence update)
(Rel. 41, Last annotation update)
                                                                                                                           51
                                                                                                                                                                              Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       N.A
                                                                                                                                                                                                                                     AA,
                                                        STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180-181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PubMed=8282708;
                                                                                                                                                                         2.8%; L
100.0%; Prr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2.4.1 / NCIB
                                                                                                                                                                                                                                     20483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 the EMBL/GenBank/DDBJ databases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AND
                                                                                                                                                                                                                                   MW;
                                                                                                                                                                                           Score 6; I
Pred. No.
                                                                                                                                                                                                                                   RESPONSE REGULATORY.
; D73447E037F1285B C
                                                          PRT;
                                                                                                                                                                                Mismatches
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8253 / DSM 158;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           removed.
                                                        202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       _
                                                                                                                                                                                       DB 1; Ler
o. 1.1e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                            (See http://www.isb-sib.ch/announce/
                                                                                                                                                                                                                                                                         Transcription regulation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    There are no restrictions ng as its content is in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MSG
                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               putative response
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Usage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   in oxygen re
sphaeroides
                                                                                                                                                                              0,
                                                                                                                                                                                                         Length 184;
                                                                                                                                                                                                                                     CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and the EMBL
                                                                                                                                                                                Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                           ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      regulation es.":
                                                                                                                                                                                                                                                                                                                                                                                                                                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              a collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                           for
                                                                                                                                                                             0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REGB/REGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  outstation
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AND PUC
                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  œ.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                             0
```

```
RESULT 39
INFB_CHICK
GREGER
                                                                                                                         밁
                                                                                                                                            S
                                                                                                                                                                   Query Match
Best Local S
Matches 6
                  INFB_CHICK
Q90873;
15-JUL-1999
15-JUL-1999
15-JUL-1999
                                                                                                                                                                                                                CONFLICT
                                                                                                                                                                                                                                                                                                                                                                                                                                          This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the Entropean Bioinformatics Institute. There are no restrained by non-profit institutions as long as its content modified and this statement is not removed. Usage by and
                                                                                                                                                                                                                                                                                                                 Pfam;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Dev.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MEDLINE=90201563; PubMed=2318343;
Hebert J.M., Basilico C., Goldfarb M., H
"Isolation of cDNAs encoding four mouse
characterization of their expression pat
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus musculus (Mouse).
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; I
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                   EMBL; X14849; CAA32967.1; -. EMBL; M30642; AAA37619.1; -.
                                                                                                                                                                                                                                                                                                                                                                                                                                entities
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  <del>-</del>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MEDLINE=89296455;
Dickson C.;
                                                                                                                                                                                                                                                Proto-oncogene;
SIGNAL 1
                                                                                                                                                                                                                                                                                                                                                                                                                       or send an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nucleic Acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                "The mouse homologue of hst/k-FGF: sequence, location relative to int-2.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SEQUENCE FROM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NCBI_TaxID=10090;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           factor)
IFNB
                                                                                                                                                                                                                                                          PROSITE; PS00247; HBGF_FGF; 1.
Proto-oncogene; Growth factor; Mitogen;
          Interferon type
                                                                                                                                              114 PPQAAV 119
                                                                                                                         60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEVELOPING LIMB.
TISSUE SPECIFICITY: EXPRESSED IN THE BLASTOCYST INNER CELL AND LATER IN DISTINCT EMBRYONIC TISSUES.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EMBRYO AND AT LATER EMBRYONIC STAGES, SIGNALING NETWORK REQUIRED FOR GROWTH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: IS ESSENTIAL FOR SURVIVAL OF THE POSTIMPLANTATION MOUSE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OR FGF-4
                                                                                                                                                                                                                                                                                                                         MGI:95518; Fgf4.
rPro; IPR002209; HB/F_growthfact.
rPro; IPR002348; IL1_HBGF.
                                                                                                                                                                                                                                                                                                                                                                           S04741
ဝ္က
                                                                                                                        PPOAAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Biol. 138:454-463 (1990)
                                                                                                                                                                                                                                                                                                                 PF00167; FGF;
                                                                                                                                                                                                                                                                                                                                                               P09038; 1BFG
                                                                                                                                                                                                                                                                              ; PR00262; IL1HBGF.
; PD000831; HB/F_growthfact;
SM00442; FGF; 1.
                                                                                                                                                                    9
IFN2
                                                                                                                                                                               Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                    requires a license agreement (See http://www.isb-sib.ch/announce/
an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FROM
                                                                                                                                                                                                           30
167
202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     growth
                                                                                                                                                                                                                                                                                                                                                                         ; TVMSHS.
                                                                                                                        65
                    (Rel.
                                                                                                                                                                     Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            N.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OR KFGF.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Res. 17:4037-4045(1989).
                                                                                                                                                                                                                ₽,
                                                                 STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     factor-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PubMed=2740210;
                    38, Created)
38, Last sequence up
38, Last annotation
          precursor
                                                                                                                                                                                                             202 F
167 A
21902 MW;
                                                                                                                                                                              2.8%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     precursor (FGF-4) (K-fibroblast growth
                                                                                                                                                                   Score 6; DB 1; Pred. No. 1.2 0; Mismatches
                                                                                                                                                                    0
                                                                                                                                                                                                                         A ->
                                                                                                                                                                                                                        FIBROBLAST GROW
A -> S (IN REF.
                                                                                                                                                                                                                                                  POTENTIAL.
                                                                                                                                                                                                                62D456231047CA31
                              update)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   patterns
                                                                 203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Haub O., Martin G.R. e FGF family members
                     update)
                                                                                                                                                                                                                                     GROWTH FACTOR-4.
                                                                                                                                                                                                                                                           Signal.
                                                                                                                                                                              3 1; Ler
1.2e+02;
                                                                 ₿
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AN ESSENTIAL PATTERNING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genome organization
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    during
                                                                                                                                                                                        Length 202
                                                                                                                                                                                                                CRC64;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   embryogenesis.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 restrictions on
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           G.R.;
                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        L COMPONENT
OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                        s.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and
                                                                                                                                                                                                                                                                                                                                                                                                                                              for
                                                                                                                                                                    0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              collaboration
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MASS
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ä
                                                                                                                                                                   Gaps
                                                                                                                                                                                                                                                                                                                                                                                                                                             commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ង
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ဝှု
                                                                                                                                                                   0
```

```
RESULT 40
BCHJ_RHOSH
ID BCHJ_RHOSH
AC Q9Z5D7;
                                                                                                                                                                                                                                                                                                                                                                      SOFTTTTWEETHORRS
                                                                                                                                                                                                                                                                                                   S
 밁
                                                                                                                                                                                                                                                                                                                         Query Match
Best Local S
Matches 6
                                                                                                                                                                                                                                                                                                                                                                                 CHAIN
DISULFID
DISULFID
CARBOHYD
CARBOHYD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gallus gallus (Chicken).
Eukaryota; Metazoa; Chordata; (
Archosauria; Aves; Neognathae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the EW the European Bioinformatics Institute. There are no restruse by non-profit institutions as long as its content modified and this statement is not removed. Usage by and entities requires a license agreement (See http://www.isb-sor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIINE=96205950, PubMed=8631799;
Sick C., Schultz U., Staeheli P.;
"A family of genes coding for two serologically distinct chicken
interferons.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRAIN=White leghorn;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NCBI_TaxID=9031;
SEQUENCE FROM N.A
STRAIN=ATCC 17023
MEDLINE=20115911;
                                                    SEQUENCE FROM N.A.
STRAIN=ATCC 17023 / 2.4.1 /
Naylor G.W., Addlesee H.A.,
"The photosynthesis gene clu
                                                                                                                                                                                                                                                                                                                                                                       SEQUENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                      Cytokine; Antiviral; SIGNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                              SMART; SM00076; IFabd;
PROSITE; PS00252; INTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  EMBL; X92479; CAA63217.1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE
                                                                                                                                                                 16-OCT-2001 (Rel. 40, Created)
16-OCT-2001 (Rel. 40, Last sequence up
16-OCT-2001 (Rel. 40, Last annotation
Bacteriochlorophyll synthase 23 kDa ch
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ProDom;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pfam; PF00143; interferon;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ÷
                                           Photosyn.
                                                                                                           NCBI_TaxID=1063;
                                                                                                                        Rhodobacter
                                                                                                                                   Bacteria;
                                                                                                                                              Rhodobacter
                                                                                                                                                                                                                                                                                                                                                                                                                                                            PROSITE;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        [nterPro;
                                                                                                                                                                                                                                                                                                    180 LQLLQN
                                                                                                                                                                                                                                                                               43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Biol.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SUBCELLULAR LOCATION: Secreted (Probable). SIMILARITY: BELONGS TO THE INTERFERON ALPHA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FUNCTION: HAS ANTIVIRAL
                                                                                                                                                                                                                                                                               LOLLON
                                                                                                                                                                                                                                                                                                                          Similarity 6; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PD000550;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FROM N.A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IPR000471;
                                                                                                                                   Proteobacteria;
                                             Res.
                                                                                                                                                                                                                                                                                                                                                                    28
28
57
37
37
160
203
                                                                                                                                                                                                                                                                               48
                                                                                                                                                                                                                                                                                                     185
                                                                                                                                              sphaeroides
                                                                                                                                                                                                                                                                                                                           Conservative
                                                                                                                                                                                                                                                                                                                                                                      ΑĄ,
                                           hesis gene cluster
62:121-139(1999).
                                                                                                                                                                                                                         STANDARD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                 INTERFERON A B D; FALSE NEG al; Glycoprotein; Signal; Mu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Interferon_abd;
 / 2.4.1 / NCIB & PubMed=10648776;
                                                                                                                                                                                                                                                                                                                                                                                  203
125
164
37
160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chordata; Craniata; Vertebrata; Eute
Veognathae; Galliformes; Phasianidae;
                                                                                                                                                                                                                                                                                                                                                                       23686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Interferon_abd.
                                                                                                                                                                                                                                                                                                                                      100.0%;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TISSUE=Spleen;
                                                                                                                                                                                                                                                                                                                                                 2.8%;
                                                                                                                                   (Rhodopseudomonas sphaeroides).
a; alpha subdivision; Rhodobacter group;
                                                      1 / NCIB 8253
A., Gibson L.C
cluster of Rh
                                                                                                                                                                                                                                                                                                                                                                       MW.
                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACTIVITIES
                                                                                                                                                                                                                                                                                                                                      Score 6; I
                                                                                                                                                                                                                                                                                                                                                                               POTENTIAL.
N-LINKED (GLCNAC. .
N-LINKED (GLCNAC. .
                                                                                                                                                                                                                                                                                                                                                                                                                  BY SIMILARITY.
                                                                                                                                                                                                                                                                                                                                                                                                                               INTERFERON
                                                                                                                                                                                                                         PRT;
                                                                                                                                                                                                                                                                                                                                                                       E9D84FEC7803FE7A
                                                                                                                                                                                                                                                                                                                           Mismatches
            8253
                                                                                                                                                                   on update)
                                                       Rhodobacter
                                                                                                                                                                                          update)
                                                                                                                                                                                                                          206
             _
                                                                                                                                                                                                                                                                                                                                      DB 1; Len
5. 1.2e+02;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (See http://www.isb-sib
                                                                                                                                                                                                                                                                                                                                                                                                                              TYPE
             DSM
                                                                            DSM 158
                                                                                                                                                                                                                          B
                                                                                                                                                                    (4-vinyl reductase).
                                                                   Hunter C.N.;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Multigene
                                                                                                                                                                                                                                                                                                                           0
                                                                                                                                                                                                                                                                                                                                                Length 203;
                                                                                                                                                                                                                                                                                                                                                                         CRC64;
                                                       sphaeroides.";
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BETA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Euteleostomi;
                                                                                                                                                                                                                                                                                                                                                                                   (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                             (POTENTIAL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                    family
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   restrictions
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                EMBL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Phasianinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DELTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                a collaboration
MBL outstation -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               for
                                                                                                                                                                                                                                                                                                                           0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ctions on its
in no way
for commercial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .ch/announce/
                                                                                                                                                                                                                                                                                                                             Gaps
                                                                                                                                                                                                                                                                                                                              0
```

```
RA Choudhary M., Kaplan S.;
RT "DNA sequence analysis of the photosynthesis region of Rhodobacter RT sphaeroides 2.4.1.";
RL Nucleic Acids Res. 28.867(2000).
CC -1- PATHWAY: Light-independent bacteriochlorophyll biosynthesis.
CC This SWISS-PROT entry is copyright. It is produced through a collaboration -CC between the Swiss Institute of Bioinformatics and the EWBL outstation of the European Bioinformatics Institute. There are no restrictions on its CC use by non-profit institutions as long as its content is in no way CC modified and this statement is not removed. Usage by and for commercial CC entities requires a license agreement (See http://www.isb-sib.ch/announce/CC or send an email to licenseeisb-sib.ch).
CC or send an email to licenseeisb-sib.ch).
CC coresponding to the photosynthesis and process and for commercial CC entities requires a licenseeisb-sib.ch).
CC process and for commercial core send an email to licenseeisb-sib.ch).
CC coresponding to provide the process of the p
```



```
Title:
Perfect score:
Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -MODEL-frame+ p2n.model -DEV=xlh
-Q=/cgn2 1/USPTO_spool/US1034500/runat_02042003_092744_19703/app_query.fasta_1.391
-Q=/cgn2 1/USPTO_spool/US1034500/runat_02042003_092744_19703/app_query.fasta_1.391
-DB=GenEmbl -QFWT=fastap -SUFFIX=rge -MINMATCH=0.1 -LOOFCL=0 -LOOFEXT=0
-UNITS=bits -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi -LIST=45
-UCALIGN=200 -THR_SCORE=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=40 -MODE=LOCAL
-OUTFMT=pto -NORM=ext -HEAPSIZE=500 -NILLEN=0 -MAXLEN=200000000
-USER=US10034500_@CGN 1 1687 @runat 02042003_092744_19703 -NCPU=6 -ICPU=3
-NO_XLPXY -NO_MMAP -LARGEQUERY -NEG_SCORES=0 -WAIT -LONGLOG -DEV_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPOXT=0.5 -FGAPOP=6 -FGAPEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Database
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Minimum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Command_line parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ·YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DB seq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
      BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2054640 seqs, 14551402878 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2
                                                                                                                                                                                                                                                                                    gb ba:
gb ntg:
gb on:
gb on:
gb ov:
gb pat:
gb pat:
gb pr:
gb pr:
gb ro:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AEVTASCTKRVESYNYLVDY.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Copyright
em_on: *
em_opt: *
em_ph: *
em_ph: *
em_ph: *
em_to: *
em_un: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8, 2003, 03:51:43 ; Search time 2221 Seconds (without alignments) 2856.556 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4109280
```

```
29: em_vi:*
30: em_htg_inv:*
31: em_htg_irv:*
32: em_htg_other:*
33: em_htg_other:*
34: em_htg_pln:*
35: em_htg_rod:*
36: em_htg_vrt:*
37: em_htg_vrt:*
38: em_sy:*
40: em_htgo_mus:*
41: em_htgo_mus:*
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result

ö

Score

Match

Length

DB

Description

## a 000 ი a 103 100.0 11.3 12500 11.3 212610 9.7 29035 9.7 339681 9.7 339681 9.2 31040 8.8 11573 8.4 2843 8.4 2843 8.4 2847 8.4 2847 8.5 2807 8.2 3183 8.2 3183 8.2 3195 8.2 3204 8.2 3205 8.3 3265 8.2 3265 8.2 3265 8.4 2843 8.4 8889 8.3 343550 8.2 2807 8.2 3043 8.2 3195 8.2 3221 8.2 3221 8.2 3225 8.1 712 8.1 1637 8.1 1637 8.1 1637 8.1 1723 8.1 772 8.1 1517 8.1 1729 8.1 00000 BSUB0019 AP003009 AP003009 AP003009 AF009584 AB0009304 AB0009309 AX434018 CCGPRU28B CCGPRU28B CCGPRU28B CCGPRU28B AR204655 AX322747 HSIATIH3 AR204655 AX376120072 AX403491 AF127033 AX403491 AF12802491 AF12802491 AF25018P STYPPHCM1 AF012910 AF25018P STYPPHCM1 AF013257 AE00346 AC114131 AF0143571 AE004083 AE004387 AE004083 AE004387 AE004083 AE004387 AE0044727 AE159198 AC114131 AE159198 AC114131 AE159198 AC114131 AE159198 AC114131 AE159198 AE16868 AC11243180 CEL2431180 CEL2431180 CEL2431180 AX464446 X16121 Aspergillus AE004083 Xylella f AE004357 Vibrio ch Z48784 S.cerevisia AC114131 Rattus no AL591983 Listeria BC004727 Mus muscu AL672070 Mouse DNA AF224491 Halocynth AF16868 Caenorhab AJ243181 Caenorhab AJ243180 Caenorhab AJ243180 Caenorhab AJ243181 Caenorhab AJ243180 Caenorhab AJ243181 (Gaenorhab AJ243180 Caenorhab AJ243182 Cāenorhab AP003587 Nostoc sp X67055 H. sapiens m AR204653 Sequence AR204653 Sequence AR204655 Sequence AR207457 Sequence AR20735 Homo sapi AX000072 Homo sapi AX000072 Homo sapi AX002318 Sequence AX376190 Sequence AX376190 Sequence AX376191 Sequence AX376191 Sequence AX403491 Sequence AX403491 Marmota m Y14137 Marmota m AF082491 Marmota m AF082491 Marmota m AF082491 Marmota m AF012910 Marmota m AF012910 Marmota m AF012910 Marmota m AF01398 Salmonell AL513383 Salmonell AF413571 Cryptospo AE013262 Methanosa AE003851 Xylella f X16121 Aspergillus AE009304 Agrobacte AE008309 Agrobacte AX434018 Sequence X79299 C.griseus r X79298 C.griseus r AP003009 Mesorhizo AF095584 Sus scrof Z99122 Bacillus su AE010569 Fusobacte AX464446 Sequence Z81356 B.subtilis

RESULT 1

ALIGNMENTS

```
Alignment S
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LOCUS
DEFINITION
ACCESSION
                           Ś
                                                                                   S
                                                                                                                                               Ś
                                                                                                                                                                                                         S
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                        맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best I
Query
DB:
35
                                                            밁
                                                                                                                       밁
                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similari
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Match:
   421
                                                                                         121
                                                                                                                                                                                 241
                                  141
                                                             361
                                                                                                                        301
                                                                                                                                                    101
                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                       61
                                                                                                                                                                                                                                                                                                                                   41
                                                                                                                                                                                                                                                                                                                                                                61
                                                                                                                                                                                                                                                                                                                                                                                           21
                                                                                                                                                                                                                                                                                                                                                                                                                          μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ,,
                                                                                                                                                                                                  CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                             ThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGlu
                                                                                                                                                                                                                                                                                                     GAAGCTATATTAAAAATTAATGCGGCAATGCCTAAAATGTCATATCAAGGTGGATTATAT
                                                                                                                                                                                                                                                                                                                          GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyr
                                                                                                                                                                                                                                                                                                                                                               TCAGGCTCTATGATGAAACATGTTGCTGTTAGAGAGCCTAAAATAGAATTAGCAAAA
                                                                                                                                                                                                                                                                                                                                                                                       SerGlySerMetMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys
                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scores:
                    TyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGly
                                                                              LeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIle
                                                                                                                        GACGGCATAAAAATGCATGAAACAGTCATTAATCAAATGCCCCCTCAGGCAGCCGTTATT
                                                                                                                                      AspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIle
                                                             CTTCTCACTGATGGTCATAATAATTTAGGGATGAATCCTGTTGAGGAAGTAAAATCTATA
                                                                                                                                                                                   TGTGCGG!TAATACAATTAAGTCTGATTTAGAAATTTTTTGGTCGTCTTACTCCTGTGGGA
                                                                                                                                                                                                                                            ACTITIGCACCITATICIGIAATTATICCCCAAGGITCIIGGAATICATGIGIGCCGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AX464446
Sequence
AX464446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lawsonia intracellularis vaccine Patent: EP 1219711-A 1 03-JUL-2002; Akzo Nobel N.V. (NL)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Jacobs, A.A. and Vermeij, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bacteria; Proteobacteria; delta subdivision; Lawsonia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Lawsonia intracellularis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lawsonia intracellularis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AX464446.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1 from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transI_table=11
/transI_table=11
/protein_id="CAD#2340.1"
/db_xref="GI:21899252"
/transIation="ASVTASCTYREVESYNYLVDYSGSWMMKHVAVREPKIELAKEAIL
/transIation="ASVTASCTYREVESYNYLVDYSGSWMMKHVAVREPKIELAKEAIL
/translation="ASVTASCTYREVESYNYLVDYSGSWMMKHVAVREPKIELAKEAIL
/translation="ASVTASCTYREVESYNYLVDYSGSWMKHVAVREPKIELAKEAIL
/translation="ASVTASCTYREYNYLVDYSGSWMSCVAECAVNTIKSDLEIFGRLTPVGDG
/KMHETVINQWEPQAAVILLTDGHNNLGMNPVEEVKSIYQTNPNVCFHVVSFADDAEG
/KAIIDQIVALNSGSVLVDGLQLLQNPAVCQEFVNSVFCQEQILVTEEVVVLRGVNFAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /organism="Lawsonia intracellularis"
/db_xref="taxon:29546"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Socation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="unnamed protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1119.00
100.00%
100.00%
100.00%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 x AX464446 (1-656)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:21899251
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9e-107
1119.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      656 bp
EP1219711.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               product"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0 656
0 218
0 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PAT 16-JUL-2002
                                                                                           140
                                                                                                                                                      120
                                                                                                                                                                                                               100
                                                                                                                                                                                                                                            240
                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                     180
                                                                                                                                                                                                                                                                                                                                                                120
                                                                                                                                                                                                                                                                                                                                                                                           40
                                160
                                                             420
                                                                                                                        360
                                                                                                                                                                                 300
                                                                                                                                                                                                                                                                                                                                 60
                                                                                                                                                                                                                                                                                                                                                                                                                        60
   480
```

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
REFERENCE
AUTHORS
TITLE
TITLE
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BSATPC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       rocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                              Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlnIleLeuValThrGluGluValValValLeuArgGlyValAsnPheAlaPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGlnGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAAGCAATAATTGATCAAATTGTTGCACTTAATAGTGGAAGTGTTCTTGTTGATGGTTTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAAATTCTTGTTACAGAAGAAGTTGTTGTACTTCGTGGCGTCAACTTTGCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGCTTCTACAAAATCCTGCTGTTTGCCAAGAATTTGTTAATAGTGTTTTTTTGTCAAGAG
                                                                                                                                                                                                                                                                                                                                                                    Glaser,P., Danchin,A., Kunst,F., Zuber,P. and Nakano,M. Identification and isolation of a gene required for nit assimilation and anaerobic growth of Bacillus subtilis J. Bacteriol. 177 (4), 1112-1115 (1995)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Perego, M., Hanstein, C., Welsh, K.M., Djavakhishvili, T., Glaser and Hoch, J.A.
Multiple protein-aspartate phosphatases provide a mechanism f integration of diverse signals in the control of development
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lopez-Diaz,I., Clarke,S. and Mandelstam,J. spoIID operon of Bacillus subtilis: cloning and J. Gen. Microbiol. 132 (Pt 2), 341-354 (1986)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene.
Bacillus subtilis.
Bacillus subtilis
Bacteria; Firmicutes;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          aspartyl-phosphate phosphatases; ATP synthase (
gene; MoaA-like protein; murA gene; narA gene;
gene; spoIID gene; UDP-N-acetylglucosamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BSATPC
B. subtilis atpC gene
Z81356
Z81356.1 GI:1648848
                                                                                                                                                                                                                 Submitted (25-OCT-1996) Moleculaire, Institut,
                                                                                                                                                                                                                                                                                                       Glaser, P., Danchin, A., Bacillus subtilis atpC
                                                                                                                                                                                                                                                                                    Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                             8001132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95094268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86226160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               i-carboxyvinyltransferase; ureA gene; urease gene; ywmC gene; ywmD gene; ywmB gene; ywmF c
                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                      7860592
                                                                                                                                                                                                                                                                                                                       (bases 1 to 12500) aser, P., Danchin, A.,
                                                                                                                                                                                                                                                                           (bases 1 to 12500)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (bases 9069 to 10202)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (bases 10749 to 12188)
                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 6559 to 8921)
                                                                                                                                                                                                      France
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (6), 1047-1055 (1994)
/gene="atpC"
/codon_start=2
/transI_table=11
/product="ATP synthase e
/protein_id="CAB03676.1"
                                                                                          /gene="atpC"
                                                                                                           /db_xref="taxon:1423"
|. .136
                                                                                                                                                                                   ocation/Qualifiers
                                                                                                                                           strain="168"
                                                                                                                                                       organism="Bacillus subtilis"
                                                                                                                                                                                                                   ) Philippe
Pasteur, 2
                                                                                                                                                                                                                                                                                                          ť
                                                                                                                                                                                                                                                                                                                          Kunst, F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Welsh, K.M.,
                                                                                                                                                                                                                                                                                                            ureA chromosomal region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ď
                                                                                                                                                                                                                                                                                                                          and Moszer, I.
                                                                                                                                                                                                                    28 P
                                                                                                                                                                                                                   Glaser,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA
                                                                                                                                                                                                                   Dr Roux, Par
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 e gamma
gene; y
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            epsilon subunit;
narQ gene; rapB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Bacillus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ywmG gene
                                                                                                                                                                                                                      ie et (
Paris
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Glaser, P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       05-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ywmB
; ywmH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B.
```

```
terminator
RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RBS
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             RBS
RBS
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="ulknown"
/product="ulknown"
/product="ulknown"
/product="ulknown"
/product="ulknown"
/product="ulknown"
/db_xref="G1":CAB03679.1"
/db_xref="g01":CAB03679.1"
/db_xref="g01":S-PROT:P07372"
/db_xref="sW1SS-PROT:P07372"
/txanslation="mKQPAITLSVLCALILLVPTLLVIPPQHNKEAGASVESEKTAVS
/txanslation="mKQPAITLSVLCALILLVPTLLVIPPQHNKEAGASVESEKTAVS
/txanslation="mKQPAITLSVLCALILLLVPTLLVIPPQHNKEAGASVESEKTAVS
/txanslation="mKQPAITLSVLCALILLLVPTLLVIPPQHNKEAGASVESEKTAVA
/txanslation="mKQPAITLSVLCALILL"
/txanslation="mKQPAITLSVLCALILL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (650. .658)
1155. .1161
1172. .1909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tranelaeion="MKKKQVSHAIIISVMLSFVIAVFHTIHASELTPLAQMAEGMERQ
DVSIIKWTLHAKQNLSLTEKEFYQKVQRLKQBYRQYDWIIAREDKMIKALGTYTDKKN
RTSFRLQLVTTLKKHNPFSYLLYSQMSLETDDSWNDYTYSGFERETLGIFOGKVVIFTC
LAGHLDDMMIVLQKSNQLLNEFQARSVEHVVEPNFVSISAFTDEWEEYIMTSKHKMN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /trānslation="mwhsffqpekqygedlpifdqeweaiafyydyrqsqieelnelc
Qffnisltytreslbelenlyfqsiqellladwnlpieefekmisvylidcviarhed
Abwyvkpypykdgaytlgfrrhrkswhtmnacdglylrpkedrpllslfdslvrs"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="ywmA"
                                        adfewkrngdt i tyttrgfghgygmsqyganfmakegktydd i ykyyyqgtq i seada
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3434. .3439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1-carboxyvinyltransferase"
/protein_id="CAB03688.1"
/db_xref="GI:1648861"
/db_xref="SPTREMBL:P70965"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene=":
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (170.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LQIALRSAGMGGKHTVTVGTPIVTTEY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="unknown"
/protein_id="CAB03678.1"
/db_xref="GI:1648851"
/db_xref="SPTREMBL:P70959"
                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3449. .4480
'gene="spoIID"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl_table=11
/product="UDP-N-acetylglucosamine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="murA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene="murA"
1943. .3253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          translation="DKERAEAARQRAQERLNSQSDDTDIRRAELALQRALNRLDVAGK/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="ywmB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           db_xref="SPTREMBL:P70958"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           protein_id="CAB03677.1"
db_xref="GI:1648850"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="ywmA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   db_xref="GI:1648849"
db_xref="SWISS-PROT:P37812"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="spoIID"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .1909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .4480
                                                                                                                                                                                                                                                                                                                                                                                                                               _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .643)
Score:
                                                                        Alignment Scores:
                                        Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   conflict
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          terminator
                                                                                                                                                                                                                                                                                                                                                                               6813. .6821
6829. .6945
/gene="ywmP"
/gene="ywmP"
/codon start=1
/transT_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5873. .5941
/gene="ywmD"
6562. .6586
6627. .6635
6641. .6802
/gene="ywmE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="ywmC"
5551. 5583
5559. 5866
5873. 6547
/gene="ywmD"
5873. 6547
/gene="ywmD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon start=1
/transI table=11
/product="nuknown"
/protein id="CAB03680.1"
/db_xref="GI:1648853"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /COGON_Start=1
/COGON_Start=1
/trans=1 table=11
/product=unknown"
/protein_id="CAB03681.1"
/protein_id="CAB03681.1"
/db_xref="GI:1648854"
/db_xref="SPIRKEL:PO961"
/db_xref="SPIRKEL:PO961"
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADTNVAVLFDGSGSMVQ
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITDGEETCGGDP
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITTTT"
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITTTT"
/trans=1stion="MKKLAGIIGLITVSIASPSFAAEKQADVXLITTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="ywmC"
4866. .5549
/gene="ywmC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="Sptrembl:p70960"
/db_xref="Sptrembl:p70960"
/tabbaekteteakapanvavlldas
/tabbaektetekpasketiskpasslpegtovkmsvpgsegnnknsgkvqsceairn
gsmakridgvskrmsakketiskpasslpegtovkmsvpgsegnnknsgkvvqsceairn
vygpqspnegsflnslnvigptgwtpiakalneaksspdQldakgekvvylltddeet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AQKFTE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4866. .4934
                                                                                                                                                                                         /protein_id="CAB03690.1"
/db_xref="RGI:1648863"
/db_xref="SPTREMBL:P70967"
/translation="MSTNPAFVVNAHWCSRVIKGTAAKCLGVLPKHRRHHIL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TQQSLMLSK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGGNP1KTAKELQKDN1TVNV1GFDYKEGYKGQLNA1AKVGGGEYFPAYTQKDVEK1F
                                                                                                                                                                                                                                                                                                                                                  product = "unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KKNOHNOT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /db_xref="GI:1648862"
/db_xref="SPTREMBL:P70966"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
/product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="spoIID"
/citation=[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translation="MKLFGMIFLIATVAFILLGVLLKLAAFFFVSILTLIAAIVLFTV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      protein_
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  replace="g"
0.0206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      id="CAB03689.1"
Length:
Matches:
    12500
57
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                BSUB0019/c
                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x BSATPC (1-12500)
                                                                                                           REFERENCE
                                                                                                                                                                                                                                                                                                                   RESULT 3
                                                                                                                                                                     SOURCE
                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                  KEYWORDS
                                                                                                                                                                                                                          ACCESSION
                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5367
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5307
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4995
                                                                                                                                                                                                                                                                                                                                                         5511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5247
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAAAAAGTGGTGTATCTGTTGACAGACGGTGAGGAAACGTGCGGAGGAAACCCGATTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCys 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTĠĠĊTCTGAAGGAAACAATAAAAATTCCGGAAAAGTTCAGTCATGTGAAGCCATTCGC 5168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnGlγ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluAlaileLeuLysIleAsnAlaAlaMetPro-----LysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaGluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyr 20
                                                                                                                                                                                                                                                                                                                                                       AAAATTTTCACTCAGCAATCACTAATGTTATCTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsn 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACAGCAAAGGAACTGCAAAAA-----GACAATATCACTGTTAATGTGATCGGCTTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAla 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGlu 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CCAATTGCCAAAGCGCTGAACGAGGCGAAATCTTCTTTTGACCAGCTTGATGCAAAAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AACGTATACGGCTTCCAAAGCTTTAAC-----GAGCAAAGCTTCCTCAATTCT--- 5216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAAGAAATTTCAAAGTTTTGCGAGCTCATTGCCAGAAGGAACTCAGGTGAAAATGAGCGTG 5108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCGGAAGTATGGCGAAAAGAATAGATGGTĞTÄ-----TCTÄÄÄTTTAATTCAGCCÄÄÄ 5048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AspAspAlaGluGly---LysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySer 174
                                                                                                                                                                                                                                                                                                                                                                                            SerValPheCysGlnGluGlnIleLeuValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATTATAAAGAGGGATACAAAGGCCAGCTGAACGCAATTGCGAAAGTAGGCGGCGGTGAA 5477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro-----
                                                                                                                                                                                                     Bacillus subtilis c
to 3809700.
Z99122 AL009126
Z99122.1 GI:263602
Azevedo, V., Bertero, M.G., Bessieres, P., Bolotin, A., Borchert, S., Borriss, R., Boursier, L., Brans, A., Braun, M., Brignell, S.C., Bron, S., Brouillet, S., Bruschi, C.V., Caldwell, B., Capuano, V., Carter, N.M., Choi, S. K., Codani, J.J., Connerton, I.F., Cummings, N.J., Daniel, R.A., Denizot, F., Devine, K.M., Dusterhoft, A., Ehrlich, S.D.,
                                                                                      Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
1 (bases 1 to 212610)
Kunst, F., Ogasawara, N., Moszer, I., Albertini, A.M., Alloni,
                                                                                                                                                                                                                                                                              8100BU28
                                                                                                                                                 Bacillus
                                                                                                                                                                 Bacillus subtilis.
                                                                                                                                                subtilis
                                                                                                                                                                                                       GI:2636029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        40.52%
24.57%
11.26%
                                                                                                                                                                                                                                                           complete genome
                                                                                                                                                                                                                                                                            212610 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                  CCGGCTTATACCCAAAAAGATGTTGAG
                                                                                                                                                                                                                                                             DNA linear BCT 24-
(section 19 of 21): from
                                                                                                                                                                                                                                                                                                                                                                                            206
                                                                                                                                                                                                                                                                                                                                                         5546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37
84
54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----- 57
                                                                                                                                                                                                                                                                              BCT 24-JUN-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115
                                                                                                                                                                                                                                                                                                                                                                                                                                  5510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5366
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5306
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          97
```

```
Emmerson, P.T., Entian, K.D., Errington, J., Fabret, C., Ferrari, E., Foulger, D., Fritz, C., Fujita, M., Fujita, Y., Fuma, S., Galizzi, A., Galieron, N., Ghim, S.Y., Glaser, P., Goffeau, A., Golightly, E.J., Grandi, G., Guiseppi, G., Guy, B.J., Haya, K., Hatech, J., Harwood, C.R., Henaut, A., Hilbert, H., Holsappel, S., Hosono, S., Hullo, M.F., Itaya, M., Jones, L., Joris, B., Karamata, D., Kasahara, Y., Klein, C., Kobayashi, Y., Koetter, P., Koningstein, G., Krogh, S., Kumano, M., Kurita, K., Lapidus, A., Lardinois, S., Lauber, J., Lazarevic, V., Lee, S.M., Levine, A., Liu, H., Masuda, S., Mauel, C., Medigue, C., Medina, N., Mellado, R.P., Mizuno, M., Mocstl, D., Nakai, S., Noback, M., Noone, D., O'Reilly, M., Ogawa, K., Ogiwara, A., Oudega, B., Park, S.H., Parro, V., Pohl, T.M., Purnelle, B., Rapoport, G., Rey, M., Reynolds, S., Rieger, M., Fivolta, C., Rocha, E., Roche, B., Rose, M., Sadaie, Y., Sato, T., Sakowska, A., Seror, S.J., Serror, P., Shin, B.S., Soldo, B., Sakowska, A., Seror, S.J., Serror, P., Shin, B.S., Soldo, B., Sorokin, A., Tacconi, E., Takagi, T., Takahashi, H., Takemaru, K., Tosato, Y., Uchiyama, S., Vandenbol, M., Vannier, F., Vassarotti, A., Viari, A., Wambutt, R., Wedler, B., Wedler, H., Weitzenegger, T., Winters, P., Wipat, A., Yamamoto, H., Yamane, K., Yasumoto, K., Yata, K., Yoshikawa, H.F., Zumstein, E., Yoshikawa, H. and Danchin, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (18-NOV-1997) I. Moszer, A. Danchin, Institut Pastev Regulation de l'Expression Genetique, 28 rue du Docteur Roux, Paris Cedex 15, FRANCE. B-mail: moszer@pasteur.fr, adanchin@pasteur.fr Phone: +33 (0)1 45 68 84 41, Fax: +33 (0)1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (bases 1 to 212610)
Kunst, F., Ogasawara, N.,
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The complete genome sequence of the gram-positive Bacillus subtilis
Nature 390 (6657), 249-256 (1997)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Danchin, A.
                                                                                   48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /protein_id="CAB1F
/db_xref="Cab1F
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xxef="SPTREMBL:034986"
/translation="MRKYTVIASILLSFLSVLSGGHHESKAFPVVQQELFQTPHYIPL
/LENPPQIDVKAEMRSNUTIASQVRDNSYQAFSAFLFYKQSNELGYKMVPMDPTPGAVR
KFLAQIPKRLIWNSELEYYIVMSNGKQRVESETKKLKLEGYQADLAHIPELLITELAV
NNRGHYDLISSNGNDYIMLYMGWGITDEDIAWMNQVLKKHPDRMAILAFHEYLLVSGN
RSPIGEKIFKEIVKPNPNVVMVLSGHYHSAMRKTDELDDDGDGKPDRLVHQMLADYQG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement(10.
                                                               QWKNADRSMSVLDKSGIPYGVLAGNHDVGHKDGSYRAFGKYFGSDRFDKKFHYGGSYK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (10.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         organism="Bacillus subtilis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="yvnB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           strain="168"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             xref="taxon:1423"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ref="GI:2636030"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Yoshikawa, H. and Danchin, A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Fax: +33 (0)1 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  bacterium
```

FEATURES

gene

JOURNAL MEDLINE PUBMED REFERENCE AUTHORS

TITLE JOURNAL

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
                                                                                                      Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="MSQSIKLFSVLSDQFQNNPYAYFSQLREEDPVHYEESIDSYFIS
RYHDWXYILQHEDIFTTKSLVERAEPVWRGPVLAQMHGKENSAKRIVWRSFIGDALD
HLSPLIKQNABRLLAPYLERGKSDLVNUDFGKTFAVCVTMDULGLDKRDHEKISEWHSG
VADFITSISQSPEARAHSLWCSEQLSQYLMPVIKERRVNPGSDLISILCTSEYEGMAL
SDKDILALILNVLAATEADDKTLALMIYHLLNNEEQNNDVLADRSLVPRAIAEFLRY
KPPVQLIPRQLSQDTVVGGMEIKKDTJVVFCMIGAANRDEAFFGQDVEWHHRBDLGIK
KSPSGAARHLAFGSGIHNCVGAAFAKNEIEIVANIVLDKWRNIRLEEDFCYAESGLYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MTGMVTERRSVHFIAEALTENCREIFERRRHVLVGISFFNSRFS
EDYIYRLIGWAKAQFKSVSVLLAGHEAANLLEALGTPRGKAERKVRKEVSRNRRFAER
ALVAHGGDFKAIHTFSDFIDNKAYQLLRQBVEHAFFEQPHFRHACLDMSREAIIGRAR
GVSLMMEEVSEDMLNLAVEYVIAELPFFIGAPDILEVEETLLAYHRPWKLGEKISNHE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (5791. .6537)
/gene="yvmC"
                                                                                                                                                                                                       /translation="msdltkomiydiyvrllhlneokantslooffkeaaeedvaeip
KNMTSIHVIDCIGOHEPINNAGIARKMNLSKANVTKISTKLIKEEFINSYOLTDNKKE
VYFKLTRKGRRIFDLHEKLHKKKELAFYOFLDSFSQEEOKAVLKFLEOLTSTLEAEOT
                                                                                                                                                                                                                                                                                                                                                                                                               /note="alternate gene name: yzhA similar to hypothetical proteins
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="yvmB"
6963. .7472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RGPVSLLVAFDGA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transl_table=11
/product="cytochrome P450-like enzyme"
/protein_id="CAB15523.1"
/db_xref="G1:2636032"
/db_xref="SPTREWBL:034926"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="Sptrembl:034692"
/tashlation="Mdnsihdelfqaiqqfalkrdkruwqkvqipsigissqhhdhlk
/tashlation="Mdnsihdelfqaiqqfalkrdkruwqkvqipsigissqhhdhlk
kdwtltqlhivschhtsqununsflaskhhiskaavskavhallkhniitvtkkpgnk
kbifytltdsgrklaalheqlhekakbqykqlfnefsiddlktvtaffnlwikym"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        KVETDYFECNVYTNEELGKREQVKSGDTAEFRWDHLEPQSVYYWYIIVEDSFNGKTKS
PIWKFKTKKETYRPAPDQFDFRHVSNP"
                                                                                                                                                                                 DGTPDKPVK"
                                                                                                                                                                                                                                                                                                           /transl_table=11
/protein_id="CAB15525.1"
/db_xref="GI:2636034"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FSICMRPNQGYLIVQEMAQMLSEKRITSEG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (5791. .6537)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 complement (4558. .5775)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (4558. .5775)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /codon_start=1
/transT_table=11
/protein_id="CAB15522.1"
/db_xref="GI:2636031"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="yvmB"
/function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein_id="CAB15524.1"
/db_xref="GI:2636033"
                                                                                                   /gene="yvmA"
7493. .8704
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="similar to hypothetical proteins"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="yvmC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="cypX"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'gene="cypX"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="similar to hypothetical proteins from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="yvnA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="
                                                                                                                                                                                                                                                                                                                                                                                         codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               db_xref="SPTREMBL:034351"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         function="unknown"
codon_start=1
                          note="similar to transporter"
                                                function="unknown"
                                                                              gene="yvmA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               function="unknown"
                                                                                                                                                                                                                                                                                   xref="SWISS-PROT:P40762"
                                                                                                                                                      .8726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             table=11
                                                                                                                                                                                                                                                                                                                                                                                                                 proteins"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B. subtilis"
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                  Ş
문
                                     S
                                                                               밁
                                                                                                                     S
                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                            Db 178232 GCTGAÄAAGÄČÄGAAACGGAGGCTÄAAGCGCCGGCGAACGTGGCGGTCTTGCTTGÄTGCC 178173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-034-500-2 (1-218) x BSUB0019 (1-212610)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
  177950
                                                                                                                                                                                                                                                        178058 TTTGGCTCTGAAGGAAACAATAAAAATTCCGGAAAAGTTCAGTCATGTGAAGCCATTCGC 177999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    terminator
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NO...
                                                                                                                                                                                                              56 GlnGly----
                                                                                                                                                                                                                                                                                                  41 GluAlaIleLeuLysIleAsnAlaAlaMetPro------LysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                                                                               21 SerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                          78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1 AlaGluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyr 20
                                                                                                                         GlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCys 77
                                                                                                                                                                                                                                                                                                                                          AGCGGAAGTATGGCGAAAAGAATAGATGGTGTA-----TCTAAATTTAATTCAGCCAAA
                                 ValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protein_id="CAB15526.1"
/db_xref="GI:2636035"
/db_xref="GI:2636035"
/db_xref="GI:2636035"
/db_xref="SPTREMEL:034307"
/translation="MAHTK:034307"
/translation="MAHTK:0541IDFKGARIVLITGILATAAASIGCAVTTDFTLFL
AMVNLSVSVFMIVTAIMQIIIGAIIDFKGARIVLITGILATAAASIGCAVTTDFTLFL
IFRMIQAAGSAALFPLIAATTIGOLFTGNERGSAMGTYQMLLSVAFAIAPVLGGFIGGA
AGYEGIFWILAAISIVLLVINSITFFKDSFTESMQDAKGNVFAHYKSIFNTRTGNVIL
TLSFVLFFIYEAVIVVLPILLTEHYHIDVGIAGLLYLPLALSTIAGTEIFKRIQAKIG
LHTLFIGSNVIAACSIILFAVTHSVSLVLMALITLALFGISMGVIPPLYSTMITNEFEH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/trans1_table=11
/protein_id="CAB15527.1"
/protein_id="CAB15527.1"
/db_xref="GI:2636036"
/db_xref="SPTREMBL:034648"
/translation="NVKWANSILVNALLLIVIDGYIDSIHISSIGAAIIASLILSILN
/translation="NVKWANSILVNALLLIVIDGYIDSIHISSIGAAIIASVILSILN
VLIKPLLIIFTLPVTMVTLGLFLFVINAITLMMTASIMGDSFQIDGFGTAIWASVILS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8709
  ----CTCAATACAATTGGGCCGACT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (8732. .9091)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        QKRTKQKKHHM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (9093. .9290)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (9093. .9290)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    VFHLLIQKGILEPLRKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NRGSAIGMFNFIRYTGMAAGPMVSAYLLTMMPSAMSFSLLGLGFAALSFCLLPPMFSP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/protein_id="CAB15528.1"
/db_xref="GI:2636037"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="yvmA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                translation="MNKLYRSEKNKKIAGVIGGLAEYFNWDASLLRVITVILAIMTSV/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    db_xref="SPTREMBL:034719"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="yvlC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="yvlC"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="yvlD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="yvlD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.657
126.00
40.52%
24.57%
11.26%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .8726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (8732. .9091)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      212610
57
37
84
54
-GGCTGGACG 177921
                                            97
                                                                                    177951
                                                                                                                                                                                                                57
                                                                                                                                                                                                                                                                                                                                              178119
```

gene

CDS

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AE010569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db 177656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Db 177689
                                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDLINE
DALIDEM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          177800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   177920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        177749
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              177860
                                                                                                                                                                                               gene
                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAAATTTTCACTCAGCAATCACTAATGTTATCTAAA 177621
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TACTTC - --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsn 194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATTATANAGAGGGATACAAAGGCCAGCTGAACGCAATTGCGAAAGTAGGCGGCGGTGAA 177690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACAGCAAAGGAACTGCAAAAA-----GACAATATCACTGTTAATGTGATCGGCTTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAla 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAAAAAGTGGTGTATCTGTTGACAGACGGTGAGGAAACGTGCGGAGGAAACCCGATTAAA 177801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGlu 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCAATTGCCAAAGCGCTGAACGAGGCGAAATCTTCTTTTGACCAGCTTGATGCAAAAGGG 177861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AspAspAlaGluGly---LysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lykidis, A., Bhattacharyya, A., Bartman, A., Gardner, W., Grechkin, G., Zhu, L., Vasieva, O., Chu, L., Kogan, Y., Chaga, O., Goltsman, E., Bernal, A., Larsen, N., D'Souza, M., Walunas, T., Pusch, G., Haselkorn, R., Fonstein, M., Kyrpides, N. and Overbeek, R. Genome sequence and analysis of the oral bacterium Fusobacterium nucleatum strain ATCC 2586
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fusobacterium nucleatum subsp. nucleatum ATCC Fusobacterium nucleatum subsp. nucleatum ATCC Bacteria; Fusobacterium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Fusobacterium nucleatum subsp. 197 of the complete genome. AE010569 AE009951
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kapatral, V., Anderson, I., Ivanova, N., Reznik, G., Los, T., Lykidis, A., Bhattacharayya, A., Bartman, A., Gardner, W., Grechkin, G., Zhu, L., Chu, L., Kogan, Y., Chaga, O., Golteman, E., Bernal, A., Larsen, N., D'Souza, M., Walunas, T., Pusch, G.D., Haselkorn, R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Fonstein, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Kapatral, V.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AE010569.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AE010569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21886394
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60168811
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Bacteriol. 184 (7),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 9035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 9035)
                                                                                                                                                                                                                                                                                                                                                                                                  Chicago,
               /codon_start=1
/trans1_table=11
/product=-hypothetical protein"
/protein_id="AAL94772.1"
/db_xref="GI:19714079"
                                                                                                                                                                                                                                                                  /sub
                                                                                                                                                                                                                                                                                                                                                                        location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                  (13-FEB-2002) Integrated icago, IL 60612, USA
translation="MENPFTHEKIEENMNVNVEIVLDASGSMVKKIGDKTMMEIAKES"
                                                                                                                               'gene="FN0576"
                                                                                                                                                                         'gene="FN0576"
                                                                                                                                                                                                                                                                                        strain="ATCC 25586"
                                                                                                                                                                                                                                                                                                                               organism="Fusobacterium nucleatum subsp. nucleatum ATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GI:19714078
                                                                                                                                                                                                                    _xref="taxon:190304"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kyrpides, N. and Overbeek, R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Anderson, I., Ivanova, N., Reznik, G., Los, T.,
                                                                                                                                                                                                                                           xref="ATCC:25586"
                                                                                                                                                                                                                                                               _species="nucleatum"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2005-2018 (2002)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   9035 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nucleatum ATCC 25586,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCGGCTTATACCCAAAAAGATGTTGAG 177657
                                                                                                                                                                                                                                                                                                                                                                                                                      Genomics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                      2201 W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCT 01-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                      Campbell Park
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          177750
```

gene

CDS

```
/ LTATISTATION - "MFILSILAIAPVACKKDKOEQQNDTGQSETSQGYDGYQOVLYVN NAKFNI EGDI VVLFSEELDKNODFKKLVEVECLGDI TIMPF PINKLI IKGNFKKDNFY NVKVSKDI KGISGTSLTNDY IKYNLYLGKKEPSLS FVDSGNVLPS INNKKINENSVNI SKVKLEVVKVYTNNI TQYLKLYSNEYGYNEWELKDDLGDI VYTKEYELDSKEDQVVKN SIDLSNI DTKGI YYVKI SAIGEDSLDYDI AKYGEPNSFGYDGDU IYARAEKTI ILSD IGI VANSNNSKLDKLLALNTLAPVPNARLEFINSKNQTLEEGTTNSNGEYKSKTNLD KUFYULVKSGNEFNULVLAGSKKINYSDFDIGGSLDGSDLKLYTYTDKGYYRRDEDINV SLI ARSKEKMNDNQFEYSFTGPDGSTKINNEIVKESKNGFYTFKI KTDMNDLTGAWT LISI KFGGKETQKVFI ESKI ANTIA IDADEDKI YTKADVKNKAI DFKFA FKYLSGANV DKGTI VNFDYAVI EKDTQSKKYREVNESNERVFYOFRNFAETTLDGSGSEVNKYIL DENGTI VNFDYAVI EKDTQSKKYREVNEWSTOFKI INRENSVGVQKVSQNDNETSVKYIL PDTLQSKNLYLSTI VNVSDANGRYSTEHKVFKI INRENSVGVQKVSQNDNETSVKYIL LEGETSGSSP LEKTTSGSSP KENLYGORDAGKKKKREYNWWYDYYYNDGEKSFKENLTGTTLDGSGSKVNLYSGANV
ELLKVIKLGDGYNF I ELEDEETGHSSGVFVYKEHYGDKRHGTI ENLNI TADKEKYNIG
DI AKI KYSGAVGS KALVTI EKDGKI I KEYWKTLTVKONEETI VI EKOPFPNAYVS I SV
FQKYVDKQNDRPLRLYGSVPLAVDDKSRMLTLQVDTKTETLYGGDLKI KLSNKENKOM
YYEVFLVDEGVLRMTDYKKPDPYKFFYEKRAKLVQSYDNFSNI I ERYSDKVANRLKTG
GGDAEEDALDSPMAAEVAYKKEDMQLFGDAQRFANLTI FRGVAESDENGNAVVDVKLP
NFFGRMRLFVVAVSDESYGSAEKS I SVKAPVI VETSAPRVLKVGDKFTVPI TI FPI EK
AIGNSEITLTYNGKTYNKKNIVKDGKSEKVLELEAPATVGTTKI DI DFKSSKYSYKD
TINLAVDTNYPYQYNEKS I VLEPNQBFTLSAESKOFNOFINGSVKSKLVLSSYQOKLGIEK
LI KSLLDYPY I CLEQ I SSKGMAMLY I DNLTTD PI EKNDAKNEINTI I GKLNNNYQLRN
GAFAYMPGSQEEGI STVYALI RELI BAKEKGYYVPETMFEKSKEYLNSI AMRTDVPKIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /translation="MVFLVGLKLKAEALKILKEYYGYDNFREGQEKIIDAILEKRNVL
GIMTTGAGKSICYQIPALIFEGUTIIISPLISHKYEYYGYDNFREGQEKIIDAILEKRNVL
GIMTTGAGKSICYQIPALIFEGUTIIISPLISHKYETHEY KTVKISMVVUDEAHCYSQWGENFRE
SYLRIADFVKYLSGETQIQTLAFTATATPKIKVDIIEKLNIINPFIYIDYFNRDNIYF
KYVDNSGLDKOLDIDSKPFIIDYFLKHGKKSGIIYCSTRKNVDIIYSYLVGFDRSVTK
YHGGNSKEERERKNOKLFLDDDIETMATNATAFGMINKSNIRTVVIHANIIPADLESYYGE
AGRAGRDGGSAEAILIYNEKDENDIQRYLMEKEAEGKTDRNYLNKRLKNFNKMIEYAEL
KTCYREYILKYGGKMIRNYCGYCENCKKEKNIKDFSLASKYLISGVGRAKESIGIST
LANMLMGKADTTMANTATGHKEDEKIDFYYENDLFKELNSLKKEISQENIAPYIIFSD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="Hypothetical protein"
/protein id="AAL94773.1"
/protein id="AAL94773.1"
/db_xref="Gil:19714080"
/translation="MSNIEEFKKLYNFEFEEIKAKDYKEIEKKYLASYKEGKEKGFTF
/translation="MSNIEEFKKLYNFEFEEIKAKDYNELGYEGKEKGFTF
/Translation="MSNIEEFKKLYNFEFEEIKAKDYKELEKYYEKTAYEGEENTEDYFT
KKNYKYDNRKKYNLELLSTLENGSKKKKSKSDVLLYKYGKNYVEULGYEGMGGYNDCPL
PAEQVAVAKYWYEKYGAVPAVITYDEIEFYVEKFVQTLEEAKKLAVEHYAFCYDIVEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IKKYLSEMPANAKVGIRVFGHKGDNTASKKDESCGANELIYPIGDLNVEGIEKALEPI
QPTGMTSIAKSIEYGVEDLKALDGEKTLNILYIITDGIETCGGNPVEIAKQLKGENTN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IVLGIIGFNVDANQNRLLKQIADAAGGYYSSVNDANKLTGELYRINELAFSDYKWEVL
NDNLITRVKGMHNEILIFNKAAYGSKGITEKVDLSTAILYGGISSSNDPKFAGLYKIY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CYGTFEKLVDGLYKNIQWYFWWD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRSAYYTGTSNKGGTREDAKKDAEKIKAEKEAAKQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GKVDKRLKELSEERKNKIDAIFEEEYNKRKKESEEYIAYLESRKGEMVAYVPSTSRVS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /product="Hypothetical cytosolic protein"
/protein_id="AAL94775.1"
/db_xref="GI:19714082"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MTLIEMAEKKPRNRWDMLKIKGIGNQKFKSYGEKFLERIINYCMEERI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="ATP-dependent DNA helicase
/protein_id="AAL94774.1"
/db_xref="GI:19714081"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2163. .4007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2163. .4007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="FN0578"
/EC_number="3.6.1.-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1/
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          459. .2184
gene="FN0577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'gene="FN0577"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             codon_start=1/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="FN0579"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'gene="FN0579"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FN0578"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   al protein"
```

CDS

```
APOO3009
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Si
Query Match:
DB:
                      REFERENCE
AUTHORS
                                                                                             KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                   DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                 ક
                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ર્ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              र्
                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x AE010569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Мо
::
                                                                                                                                                                                                                                                                                893
                                                                                                                                                                                                                                                                                                                    173
                                                                                                                                                                                                                                                                                                                                                    833
                                                                                                                                                                                                                                                                                                                                                                                                                             773
                                                                                                                                                                                                                                                                                                                                                                                                                                                               133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            683
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           566
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    17
                                                                                                                                                                                                                                                                                                                    Gly
                                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                                                                                   GGTTTTAATGTGGATGCAAACCAAAATAGATTACTAAAACAAATTGCTGACGCAGCAGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGAGTAGAAGATTTAAAAGCCTTAGATGGA------GAAAAAAACACTGAAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTAGGAATAAGAGTGTTTGGGCATAAAGGAGATAATACAGCTTCTAAAAAAAGATGAGTCA 565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAATTGCAAAAGAATCTATCAAAAAAGTTTTATCGGAAATGCCA---GCTAATGCAAAA 505
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTCTTAGATGCCTCAGGTTCAATGGTAAAGAAA-----ATTGGAGATAAAACAATGATG 448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                       SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                         CCAGTTGAAATAGCAAATAAAAAGGAGAAAATACAAATATTGTTTTAGGAATAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAAGCCTTAGAACCAATACAACCAACAGGATGGACTTCTATTGCAAAATCAATTGAATAT 682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGTGGAGCAAATGAATTAATTTATCCTATT---GGAGATTTGAATGTAGAAGGAATAGAA 622
                                                                                         Mesorhizobium loti (strain:MAFF303099)
Mesorhizobium loti
                                                                                                                                                Mesorhizobium loti DNA,
AP003009 BA000012
AP003009.2 GI:14026063
Kaneko,T., Nakamura,Y., Sato,S., Asamizu,E., Kato,T., Sasamoto Watanabe,A., Idesawa,K., Ishikawa,A., Kawashima,K., Kimura,T.,
                                                                                                                                                                                                      AP003009
                                                         Phyllobacteriaceae; Mesorhizobium.
                                                                          Bacteria; Proteobacteria; alpha subdivision;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------ArgLeuThrProValGly------
                                                                                                                                                                                                                                                                                895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3789
                                        (sites)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AERKDGSYYADDNAEILKYYTVIYGTADAELYNSVLAIAKSDAWLTTYEKANIVQALA
GDKKUSPEKKNISFKLIVDGKEQNLELKDGEYTFRNLGTKENVEKIVIKNTSSSKLYV
NSFYKGKPVKYDEKDESKNITITRKFVDKAGKEIDVKSLKAGTRFKMILTSKLAWADS
PDISLLQILPSGWEFDNTQTNIQSAGGDMIPVPVDVEEVDNEEYGESSSSNSVNYVDI
KDDRVAYFYPLYSGEDKVIEINLIAVTPGTYRLPGTKVESMYNNNYRAYLKGFEVKVK
E"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ---ATTTTATATATAATTACAGATGGAATAGAAACTTGTGGTGGAAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.798
109.00
39.23%
25.41%
9.74%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---AspGlyIleLysMetHisGluThrValIleAsnGln 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1609
                                                                                                                                                                                   339681 bp
, complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-9035)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2760
                                                                                                                                                                                   genome,
                                                                                                                                                                                                      DNA
                                                                                                              DNA.
                                                                                                                                                                             linear BCT 15-MAY-2001 section 16/21.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             9035
46
25
72
38
                                                                          Rhizobiaceae
                   Sasamoto, S.
                                                                        group;
                                                                                                                                                                                                                                                                                                                                                    392
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     JOURNAL
MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMMENT
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
JOURNAL
                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Kaneko,i.
Direct Submission
Direct Submission
Submitted (05-DEC-2000) Takakazu K
Submitted, The First Laboratory fo
Institute, The First Laboratory fo
Kisarazu, Chiba 292-0812,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1532-3, Kisarazu, Chiba 292-0812, Japan (E-mail:kaneko@kazusa.or.jp, URL.hhttp://www.kazusa.or.jp/rhizobase/, Tel:81-438-52-3935(ex.2338), Fax:81-438-52-3934)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Kishida,Y., Kiyokawa,C., Kohara,M., Matsumoto,M., Matsuno,A., Mochizuki,Y., Nakayama,S., Nakazaki,N., Shimpo,S., Sugimoto,M., Takeuchi,C., Yamada,M. and Tabata,S. Complete genome structure of the nitrogen-fixing symbiotic bacterium Mesorhizobium loti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA Res. 7 (6), 331-338 (2000) 21082930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        May
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to
                                                                                     /codon_start=1
/trans1_table=1
/product="transposase"
/protein_id="BAB52665.1"
/db_xref="GI:14026067"
                                                                                                                                                                                                                                                                        /translation="mathamasevardplyxchrpartiahammlyprapplslemved
mlaargiivthqtirswarkfgrhpareikrrsagcldkmhldecvvaingkkomlm
raudddgivlevlvosrrnakaakrlmrkllkaggrtprvmitdklrsydaarblimp
gvehrshkglnnraenshqptrrrertmkrfksarqlorfvsihdpianlfhfprutl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        447.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protein id="BAB52662.1"
/protein id="BAB52662.1"
/db_xref="GI:14026064"
/translation="WPLLAFDLLARIALPKVGLPLERVNLEACSLTAWPHDGLRAEGQ
/translation="WPLLAFDLLARIALPKVGLPLERVNLEACINWARGREPPSPVVCRS
                 /translation="MVEACATYKNHRPPIEIVAHAVWLYYRFGLSLRDVEEMLLERGI
VVSYETIRMGKKHSDDYARRLRRKAPSKDCWHLDEWAGHRKWNRRLMKWCEHGPCQ
VLIVIRFIVATAFPPRSLRTRYGSTFBAFRSACAMLRTCWRPAASSSRIRPFEAGARNS
GGISPGRSSDGQPAAWATNGISTNVWWPSMARSSGSGVPSIRTAWSSKCWCKAAEMPR
                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (733.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (733.
                                                                                                                                                                                                complement (1080. .1748)
                                                                                                                                                                                                                                      complement (1080. .1748)
                                                                                                                                                                                                                                                       SSAQHRDLRNAAMQIWNKIACLAAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPALTPRCWK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="mll6350"
complement/~~
                                                                                                                                                                                                                     'gene="ml16353"
                                                                                                                                                                                                                                                                                                                                                 /product="transposase"
/protein_id="BAB52664.1"
/db_xref="GI:14026066"
                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=1/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="ml16352"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="ml16352"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /transl_table=11
/protein_id="BAB52663.1"
/db_xref="GI:14026065"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="ml16350"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , 2001 this sequence version replaced cocation/Qualifiers
                                                                                                                                                                                 gene="ml16353"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene="msr6351"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
|transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  organism="Mesorhizobium loti"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="msr6351"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               strain="MAFF303099"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   note="unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation="MHALVHAADIQDCDGGVMVMAKLFGLDPFLFKLYAGGGHSRGRS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .339681
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            xref="taxon:381"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        339681)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .420)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Takakazu Kaneko,
                                                                                                                                                                                                                                                                                                                                                                                                                                                           .1464)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 for Plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Kazusa DNA Research
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gi:11994984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Research;
```

gene

complement (1766.

.2200)

gene

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                              Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                 SQSGLASGEGSQGFGSVLERMRSEGGKGSPSAGAARGAHDDLGGKSSGPSVPPHRIPA
AAPRAAAGPRAAGSRRRSVSSTSDGEALAPVASQPSTSGVTVPSSSSGEVINETKRRM
CSLIDEIQVLEEKSLHSGKPMEGFRDELDQLANAGAELLECYASLPKDEARSTLSDD
VRHYRADVIHRADSANELAHTIFKEEQOMKRWEDILHNLVKSNATLDQLSRRSAPSMA
KYPVACVERWDKKVQRHELMRAVCVATJADLPSSTAEMRREEEAALRLHSGWVVNSKIM
QLQSRINLAQVNMAPQAIMLEAPIRELLIGDNOQTRLLGNFIGEVFPAFVSTJAEAVLR
KEGRPLDAEHCAVLEGVVERLADPASASHSVVDFLRDDGAGLPLELLTRIVDDAWI
ASDEVTDLLALQPKPPAFDLTADAAAAMPTGTJAKKTMVAESTTAPRKKGEXDKSKQAAG
AGSSAAGRPEPQVAAAVSDPAPAAKVLVRTDLGTKKLVSAEEAQNSASSAAARLAILQ
RPTTGENTKSLVARSTELLKFDLPAQOSLISRARSGKPEDVEHAVGLVVQRLQTQAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MVARHATIAAEAVERTRTPPSRVRRQAEHAPVSAKELAQALPEDAHMVTWREGSKASLASRFATVRVRPAHRDYWRSIPHAEEWFLIEWPDGEVEPTKYWLSTLPGKTRLADLVDQAKWRWRIERDYQELKQGCCHIDFGLTV"
/product="transposase"
/protein_id="BAB52670".1"
/db_xref="GI:14026072"
/translation="MRTWAMSEVARDPLYRCHRPPAEIIAHAVWLYFRFPLSLRMVED
MLAARGIIVTHQTIRSWAEKFGRHFAREIKRRSAGCLGDKWHLDECVVAINGKKQWLW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ERQGQIRAWI VDDTGF PKKGKHSVGVARQYCGQLGKQDNCQVAVSLSVATEQASLPIA
YQLYL PESWAND PDRRAKTGVP ENVVFRTKPEI ALAQIRAALEAGVSRGVVLADAGYG
NDTAFRTGLTKVGLTYVVGVQSSIRLWS PGTQPLPFKPWSGRGFRAFGGRLMRRRS
QPRNWRKRCPRTPGTWLLGARA PRRRLPHALPFCGFGRPIATTGAPSFTLRNGS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /transT_table=11
/product="vransposase"
/protein_id="BAB52667.1"
/protein_id="BAB52667.1"
/db xref="ql:14026069"
/translation="MLHMEGAMDLQDGIETSESRFAAYVETLASVLGHADRVAPLKAY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4196.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4196.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (3398. .3616)
/gene="ms16356"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (3398. .3616)
/gene="ms16356"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (1939. .2931)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (1766. .2200)
/gene="mll6354"
                                                                                                                                                                                                                                                                                                                             SLLSDRADMRNGPA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CTGLLLPRERKSVEPMAARVEPGRVQAAHQSLHHFVAKADWSDDAVLSRVREQVLPAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (1939. .2931)
                                                                                                                                                                                                           complement (6985. .7716)
/gene="ml16359"
                                                                                                                                                                                                                                                                                             complement (6985. .7716)
                                                                                                                                                                                                                                                                                                                                                           TRKI YAQQLATLDSAEFAACHVKSNEQRGHNRQWQTSRAKKGYDNAIHRGKLTPAFCK
                                                                                                                                                                                                                                                                                                                                                                                  PFPSQNHLEQLRSARELTPADPPCALNPEPSNLFEIRLQPKALSNRTLPSPMWVHIHT
                                                                                                                                                                                                                                                                                                                                                                                                             MEPCLPALEASRLSKEGKMDDVHRLTVQFRDMLANVRGLAKAWDEQKPDMIMDCMKRY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/protein_id="BAB52669.1"
/db_xref="GI:14026071"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RSAAKRDPRSPGLRNLTNSARPNADRSL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transī table=11
/protein_id="BAB52668.1"
/db_xref="GI:14026070"
/translation="MLSGMPPCRLLRTMMMAGATIDLLAGQAFLVAGFQIETRTARHH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="mll6355"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="ml16355"
                                                                                                                                                                                                                                                                     /gene="ml16359"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /transī
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'note="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="mlr6358"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="mlr6358"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="mll6354"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translation="MADTSAPIHRQRVLVYIGDEKMTGIGRSGKSRIGDAGAGSSSSR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="unknown protein"
                                                                                                                                                                             codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            otein_id="BAB52666.1"
_xref="GI:14026068"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .6634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _table=11
                                                                                                                                                         table=11
```

```
RAVDODGLIVLEVLIVQGERNNAKAKCLIMEKLLKAQGRTPERVMITDKLRSYDAARRDLME
GVEHRSHKGLANNKAENSHQPTREREIMKRFKSARQLQRFVSIHDPIANLFHFERNTL
SSAQHEDLENAAMQIWKIACLAAA"

8086. 17256

8086. 17256

8086. 17256

8086. 17256

8086. 17256

8086. 17256

8086. 17256

8086. 17256

8087. | India to shikimate kinase"

/codon startel
/tranal table=11
/tranal table=11
/tranal table=11
/protein id="Babs2671.1"
/brotein id="Bab
```

```
밁
                                                                                                Ś
                                                                                                                                                                    ş
                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                             Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                     밁
                                                                                                                                                                                                       Db 151730
                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2 (1-218) x AP003009 (1-339681)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
151892
                                                                                                                                     151790
                                                                                                                                                                                                                                                                           151676
                                                                                                                                                                     57
                                                                                                                                                                                                                                         37
                                                                                                                                                                                                                                                                                                      17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                85
                                                                                                   67
                                                                                                                                                                                                      |||:::|||:::|||::::|
GABATCGCCAGGGAATCTCTAAGGACCGTGCTTCAATCGGTTCCCGCCGACGATGAGATC 151789
                                                                                                                                                                                                                                      GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                         ATTCTCGACGCTTCCGGCTCGATGTGGGCACAG-----ATCGACGGCAAGCCCAAGCTC 151729
                                                                  CAGCTGATCGTGCCGCCTCAGCCAGGCTCGGCAAGCGCCATCACGGATGCCGCC-----
                                                                                                                                                                     GlyGlyLeuTyrThrpheAlaProTyrSer----
                            ThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLys 104
                                                                                              -----ValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsn 84
                                                                                                                                    -----TTCATGGCCTATGGCCATCGCGAAAAAGGCAGCTGCGACGACATC 151837
-GACAGTCTGAAGTTCCTTGGCAAG---ACGCCGTTGACGGCAGCCGTCAAG 151939
                                                                                                                                                                                                                                                                                                                                                                                            109.00
41.97%
24.35%
9.74%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 67
                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                               Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                 47
34
82
30
                                                                                                                                                                           66
                                                                   151891
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 6
AF095584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ৪
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Db 152165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                152120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               151940
                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAsp 124
:::||| |||:::|||::|||||
CAGGCGGCCGAAGCGCTGAAATACACCGAGGACAAGGCAACCGTCGTCCTCATTACCGAC 151999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATGAGAAGGCGCTGCAGGAAGCCCTGGTCGAGACCGTC 152203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlnAsnProAlaValCysGlnGluPheValAsnSerVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTCGATTTCACGGCCGACGTCGTCGGCTTCGGATTGACGGCCGACGAGGGCAAGCAGATC 1.52119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProAmuvalCymPheHisValValSerPheAlaAspAmpAla---GluGlyLymAlaIle 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGGCTTGAGACCTGCGGCGATCCCTGTGCGTTGGGTAAGGAACTCAAGGCATCCGGC 152059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsn 144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----GCCTGCCTGGCCGAAAACACCGGCGGCAAGTACATC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeu 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3079 bp Sus scrofa epithelial chloride complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gaspar, K.J., Gabriel, S.E., Racette, K.J. and Forsyth, G.W. Direct Submission
Submitted (28-SEP-1998) Veterinary Physiological Sciences,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cloning a chloride conductance mediator from the porcine ileal enterocytes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; 1 (bases 1 to 3079)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           University
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Physicl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Forsyth, G.W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaspar, K.J., Racette, K.J., Gordon, J.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sus scrofa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sus scrofa.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF095584.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF095584
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 3079)
spar,K.J., Gabriel,S.E., Racette,K.J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   15605
/codon_start=1
/protein="spithelial chloride channel protein"
/protein_id="spithelial chloride channel protein"
/protein_id="shaP00077.1"
/brotein_id="shaP00077.1"
/db_xref="gI:6002646"
/translation="MGSFRSSLFILVLHLLEGAQSNSLIOLNGNGYEGIVIAIDENVP
/translation="MGSFRSSLFILVLHLLEGAQSNSLIOLNGNGYEGIVIAIDENVP
/translation="MGSFRSSLFILVLHLLEGAQSNSLIOLNGNGYEGIVKKLETYKNA
DVVVTEPNPENDGPYTEQMGNCGEKGEKIYFTDPVAGKKVLQVGCGYKYECRADRVTGL
PQKECFINNEQKFYLSNKKEQPVICSAAIRGTNVLPQCCQGGSCVTKECRADRVTGL
PQKECFIPDPQQSEKASIMFAQSIDTVEFCKEKNHNKEAPNDQNKCKIRSTWEVI
QDSEDFKKTTPMTTQPBAFTFSLLQIGQRIVCLYLDKSGSMTVGGRLKRLNQAGKLFL
LQTVBCGAWVGMVAFDSAAYVKSELVQLNSAARRDALARSLFTAASGGTSICSGLRSA
FTVIKKKYPTDGSEIVLLTDGEDNTISACFPEVKQNGAILIHTVALGPSAAKELEELSQ
MTGGLCTYASDQAENNGLIDAFGALSSGNRAASGRSIQLESQGTLYGNNGMNGTVVV
DSTVGKOTCTITIERKFLSPIPFFGVPSGRSQDSFLVGKHNKAAYFQVPGTAKVGNW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Genomics
                                                                                                                                                                                                                                                                      channel protein"
/codon et--
                                                                                                                                                                                                                                                                                                      /gene="AECC"
/function="involved in e
/function=to cacc;
                                                                                                                                                                                                                                                                                                                                                                         /gene="AECC"
133. .2886
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                               /tissue_type="ileal mucosa"
1. .3079
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="Sus scrofa"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         of Saskatchewan,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:6002645
                                                                                                                                                                                                                                                                                                                                                                                                                                                        _xref="taxon:9823"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (Online)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (2),
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Campus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     channel protein (AECC)
                                                                                                                                                                                                                                                                                                            exocrine chloride conductance" alternate epithelial chloride
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101-111 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Drive,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Loewen, M.E. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Saskatoon,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               apical membrane
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGGCCTCC 1.52164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Euteleostomi;
Sus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             MAM 13-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S7N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
E
```

LOCUS DEFINITION RESULT 7 AE009304 ş Percent Similarity:
Best Local Similarity:
Query Match:
DB: 밁 S 멂 á 片 á 밁 S 밁 밁 δ 밁 Ś В S 밁 á 밁 Ś 밁 Ś 밁 Ś BASE US-10-034-500-2 (1-218) Score: Alignment BASE COUNT ORIGIN 1630 1522 1471 1171 1063 1582 CAGCGCTCCATCCAGCTGGAGAGTCAGGGCTTAACCCTCCAGAACAAC---1123 AAACTCTTCCTTCTGCAG No 174 203 119 101 91 78 58 38 CTCATCACCTTGGAACGGAAGTTCCTTTTCCCCCAATTCCTTTT 1728 LeuValThrGluGluValValLeuArgGlyValAsnPhe ---GAATGGATGAATGGCACAGTGGTGGTGGACAGCACTGTGGGAAAGGACACTTTGTTT GlnGluPheValAsnSerValPheCysGlnGluGln----------ŞerValLeuValAsp------GlyLeuGlnLeuLeuGlnAsnProAlaValCys 189 GAGAACAACGGCCTCATTGACGCTTTCGGGGCCCTTTCGTCCGGGAACAGAGCTGCCTCC GAGCTGTCGCAGATGACAGGTGGTTTGCAGACATATGCT----TCAGACCAGGCC CAAAACGGAGCCATCATCCACACGGTCGCCCTTGGGCCCTCGGCAGCGAAGGAGCTGGAG ValileLeuLeuThrAspGlyHisAsnAsn------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGln-----AlaAla 118 GTGGCATTTGACAGCGCTGCCTATGTAAAAAAGTGAACTCGTCCAGATAAACAGCGCCGCG 1230 LeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGly Scores: GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly-------SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla ATCGTGTTACTGACCGACGGGGAGGACACACGATAAGCGCGTGCTTTCCGGAGGTGAAG -----GluIlePheGlyArqLeuThrPro------ValAlaGluCysAlaValAsnThrIleLysSerAspLeu---------GlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCys CTCGACAAGTCTGGAAGCATGACGGTTGGTGGCCGTCTTAAGCGACTGAATCAAGCAGGC -----LeuGlyMetAsnProValGluGluValLys AB009304 11040 bg Agrobacterium tumefaciens str. 187 of the complete sequence. AE009304 AE008689 892 ø RAKVTALIESENGKTVTLELLDNGAGADATKNDGIYSRYFTAYDANGRYSVKVWALGG VNTPRRRAPPILWSGAWYIRGWIENGEIKWNPPRPDINKDDLQGKQVCFSRTASGGSFV ASDVPKSPIPDLPPCKITDLKAGIQGNLINLTWIAPCDDYDGRADXYIRISTNI LDLRDKFNDSVQVNTTDLIPKGANSEEVFVFKPEGIPFTNGTDLFIAVQAVDKTNLKS EISNIAQVSLFLPPEAPPETPPETPAPSLPCPEIQVNSTIPGIHILKIMWKWLGELQL SIA" x AF095584 (1-3079) 0.795 103.50 38.03% 21.37% 9.25% a -----ACAGTGGAGCAAGGGGCCTGGGTTGGGATG 1170 755 Length:
Matches:
Conservative:
Mismatches: g J bp .... C58 Gaps: Indels: 674 linear DNA 216 3079 50 39 78 67 chromosome, linear -----ValGly BCT 20-DEC-2001 e, section 74 of 1686 1581 1470 1410 1350 100 1629 158 138 77 57 173 128 90

ACCESSION

```
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                  Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wood, D. W., Setubal, J.C., Kaul, R., Monks, D., Chen, L., Wood, G.E., Chen, Y., Woo, L., Kitajima, J.P., Okura, V.K., Almeida Jr., N.F., Zhou, Y., Bovee Sr., D., Chapman, P., Clendenning, J., Deatherage, G., Gillet, W., Grant, C., Guenthner, D., Kutyavin, T., Levy, R., Li, M., McClelland, E., Palmieri, A., Raymond, C., Rouse, G., McClelland, E., Palmieri, A., Raymond, C., Rouse, G., Mu, Z., Gordon, D., Eisen, J.A., Paulsen, I., Karp, P., Romero, P., Zhang, S., Yoo, H., Tao, Y., Biddle, P., Jung, M., Krespan, W., Perry, M., Gordon-Kamm, B., Liao, L., Kim, S., Hendrick, C., Zhao, Z., Dolan, M., Tingey, S., Yoo, Tomb, J., Gordon, M.P., Olson, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Wood, D.W., Setubal, J.C., Kaul, R., Monks, D., Chen, L., Wood, G.E., Chen, Y., Woo, L., Kitajima, J.P., Okura, V.K., Almeida Jr., N.F., Zhou, Y. Bovee Sr., D., Chapman, P., Clendenning, J., Deatherage, G., Gillet, W., Grant, C., Guenthner, D., Kutyavin, T., Levy, R., Li, M., McClelland, B., Palmieri, A., Raymond, C., Rouse, G., Saenphimmachak, C., Wu, Z., Gordon, D., Eisen, J.A., Paulsen, I.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (27-SEP-2001) Department of Microbiology, University Washington, 1959 NE Pacific Ave, Box 357242, Seattle, WA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Saenphimmachak, C., Wu, Z., Gordon, D., Eisen, J.A., Paulsen, I., Karp, F., Romero, P., Zhang, S., Yoo, H., Tao, Y., Biddle, P., Jung, M., Krespan, W., Perry, M., Gordon-Kamm, B.; Liao, L., Kim, S., Hendrick, C., Zhao, Z., Dolan, M., Tingey, S.V., Tomb, J., Gordon, M.P., Olson, M.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Agrobacterium tumefaciens str.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Washington, 1959 NE
98195-7242, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   and Nester, E.W
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Science 294 (5550), 2317-2323 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 and Nester, E.W.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Rhizobiaceae; Rhizobium.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bacteria; Proteobacteria; alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AE009304.1 GI:17742153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 11040)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 11040)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      genome of the natural genetic engineer Agrobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            faciens C58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="Atu3730"
complement(183. .1007)
                                                                                                                                                                                                                                                                                                                                                                             /product="conserved hypothetical protein"
/protein_id="AAL44540.1"
/db_xref="G1:17742154"
/tdb_xref="G1:17742154"
/translation="MRLLFLGDMVGKTGRTAVWDRLPGLISDLKLDFVIVNGENAAGG
/translation="MRLLFLGDMVGKTGRTAVWDRLPGLISDLKLDFVIVNGENAAGG
FGITEDIFLETINAGADVVTTGNHVWDDKEAVSFCERHDOFLRPANYPDGTPGKGSGI
FYARNGARILVANIMGRVFMHPELDDPFKSAETILAACPLKEQADAIIFDFHAEATSE
FYARNGARILVANIMGRVFMHPELDDPFKSAETILAACPLKEQADAIIFDFHAEATSE
KQCFGHFVDGRASFVGTHTHVPTADAQILNGGTAYMSDAGMCGDYDSSLGMEKEEPI
                                                                                                                                                                                                                                                     complement (1107. .1694)
/gene="Atu3731"
                                                                                                                                                                                                                                                                                                        complement (1107. .1694)
/gene="Atu3731"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Washington)'
                                                                                                                                                                                                                                                                                                                                                             NRFISKMPKGRFEAASGPATICGVGVEISDRTGLAEKIAPLRIGPRLSETLPSFWA"
FGTTGPGEDAEVLDPHILLVPLSVFDGEGQRIGYGAGHYDRAIARLHAKGRQPVLIGI
                     /translation="MQGDAAEKARLRGERLAARDALTPAERQQKSLSMTAHGVSGIPF
APGTVISGFMPIRSEVDTRPLMEALRARDGRLVLPVVLDQETIVFRVFEADTPLVKTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                note="identified by sequence similarity; putative; ocated using Blastx/Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'gene="Atu3730"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      strain="C58"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   organism="Agrobacterium tumefaciens str.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ocation/Qualifiers
                                                                                                'product="5-formyltetrahydrofolate cyclo-ligase"
'protein_id="AAL44541.1"
                                                                                                                                                                                                  'note="identified by sequence similarity; putative; ORF
located using Blastx/Glimmer"
                                                                        db_xref="GI:17742155"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           xref="taxon:180835"
                                                                                                                                                                             _start=1
                                                                                                                                                _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ave,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         C58 (U. Washington).
C58 (U. Washington)
a subdivision; Rhizobiaceae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           C58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ਰ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   of.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SGD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (2974.
/gene="Atu3733"
                                                                                                                                                                                                                                                             4408. .6390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="Atu3734"
3291. .3914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="Atu3733"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            'note="Atu3732"
                                                                                                                                                                                                                     /gene="tktA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon start=1
transl_table=11
                                                                                                                                                                                                                                                                                                           'gene="tktA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1923. .4195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="Atu3735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transl
                                                                                                                                                                                                                                                                                'note="Atu3736"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        note="putative;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'gene="Atu3735"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="putative;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="Atu3734"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         codon_start=1
                                                                                                                                             codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .3914
                                                                                                                                                                                                                                                                                                                                        .6390
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      table=11
```

```
/product="hemolysin"
/product="hemolysin"
/proteain id="AAL44542.1"
/dbcxref="GI:17742156"
/translation="MIVVLLTYLINGVLAMSELAVVSSRPARLKVLAAQGSRGATMALG
/translation="MIVVLLTYLINGVLAMSELAVVSSRPARLKVLAAQGSRGATMALG
/translation="MIVVLLTYLINGVLAMSELAVVSSRPARLKVLAAQGSRGATMALG
/translative="MIVVLLTYLINGVLAMSELAVVSSRPARLLEQGVPDRAADAIGVGSVV
VAITYLISLIVGELVPKQIALROPEKIAARVAFTMYMLSIGAELLDRAALGKSKVVLAI
/GHSGESNASVTDDEIRTVLAEAHSAGVIETESAMITSVMRLADRNARGKELDVREL
/ERVPVVSDLTSAVDVIQSLRTSTVHMVLVYDEYGHFEGIVSSGDVLEAITGAFQEDN
/DEPAMVEREDGSFLVAGMMRADEFAYRMGFQIDEDAEFETVAGLVLDEFRRLPELGE
//DEPAMVEREDGSFLVAGMMRADEFAYRMGFQIDEDAEFETVAGLVLDEFRRLPELGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="mdrvwpqglwflsgsaeripdigriggnhqradsefcwrgkfar
smgrgfwsceqlfgnavqpvgqiadgnshhfirfrlvfghavtvvgkgcnftlqpidl
avefgklvhhhdaghdgepqianfselalempditvetgreigqvvflprfachaigl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (2974. .3186)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (1694. .2956)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (1694. .2956)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AFDCQEVASVPAEPHDVALHAVLTESGLRWFSAQR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HITRNGWRFEVIDLDGHRIDKVLVSRAA"
/protein_id="AAL44546.1"
/db xref="GI:17742160"
/tanslation="MISEDKHIRMANAIRFLAMDAVEKANSGHPGLPMGAADVATVLF
/rrikfdpkAplwadrdrfvLsaghGsMLLYSLLYLTGYEDMTIDEIKRFRQFGSKTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WYVCHALLHKGRCGQNRDVPFNSPKS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="hypothetical protein"
/protein id="AAL44543.1"
/db_xref="G1:17742157"
/translation="MKFRVNPGPSPDDYFFVDSYFSLLPGMAFLYCCHCNGGTIAYYPD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      note="identified by sequence
located using Blastx/Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RRLYGLLSRHRFFQLARYRPNRPVSGLPNNHEVITRFTIPSIKPVH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AVDHNSDLRHETAPYRSSTÄRIVSMAVTSRRDTSRLTSSRRLARNSA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="hypothetical protein"
/protein_id="AAL44544.1"
/db_xref="GI:17742158"
                                                                                                                                   /transl_table=11
/product="transketolase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="putative; ORF located using Glimmer"
                                                                                                                                                                                                                                    note="identified by sequence
ocated using Blastx/Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation="MCEPGAVDMDPLDLIIDLARLPLPLDTHIDGIFEICDGSIQLRQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          db_xref="GI:17742159"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          product="hypothetical protein"
protein_id="AAL44545.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORF located using
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORF located using Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .3186)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aı protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              similarity; putative; ORF
                                                                                                                                                                                                                                                                              similarity; putative; ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Glimmer"
```

gene

CDS

```
US-10-034-500-2 (1-218) x AE009304
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Match:
GTGCCGGTCGCGGATGGCAAGGTGACGGACGCAACCCGTATCGAACGCGTTGCGCCGACC 9847
                                                                                                                                                                                                                                                     CATAGTATGGTCCGTCCCGAACTCGCAACAAATCAGGATCGACCCATGCCCGCTTTCAAG 9727
                                                                                                                                                                                                                                                                                                             TyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsn 84
                                                        ThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGln 116
                                                                                                                                                                                      ThrileLysSerAspLeuGluilePheGlyArgLeu--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /trans[ tak;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GHPEYGHATGIETTTGPLGQGIANAVGMAIAERKLEEEFGSDLQSHFTYVLCGDGCLM
EGISHBAIALAGHLKLMKLVLFWDDNNITIDGEVGLSDSTDQIAR FQAVHWNTIR VDG
HDPDAIAAAIEAAQKSDRPTFIACKTVIGFGAPUKQGTHVNGRUPLGAEEIAARKSL
MWEAEAFVIPEBDYLDAWRLAGLRSTKTRQDWEARLEATETAKKAEFKRFAGDLFGNF
DSSIDAFKKKIIENPTVATRKASEDSLEVINGILPEMVGGSADLTPSNNTKTSQMKS
ITPTDESGRYLHYGIREIGMAAANNGIALHGGILPYAGGFLIESDYCRPSIRLAALMG
IRVVHVLTHDSIGVGEDGFTHQPVEQIAALRAIPMLIVAFGAFLIESDYCRPSIRLAALMG
IRVVHVLTHDSIGVGEDGFTHQPVEQIAALRAIPMLIVAFGADLTFASGSVEVALKAAA
TLKDKGVSARVUSVPCTELFKEQPETKNAIIGKAEPKLAVEAAIRQGWDYFIGNDGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /translation="mesfyllluatulvlvaafssliafffgaplillepuviglaag
vorigiestinepuaymigslilavilepsgfgtslosffrlsaapvalatvgvlitsv
ppagaaallolswieslilavilsstspagfgtslosffrlsaapvalatvgvlitsv
ppagaaallolswieslilavilsstspagfuspelavilgihiedovrstlevesgri
Dpmaifltvalveivakogglagidsgfllpieemglovifgleglmiatvvnrpa
Adrglapievlaallufsftgalgigsgflavyvagivagnrripaktstreheglt
WLAQIIMFLMLGLLAILVFSFTQAIGGSGFLAVVAGIVAGNRIPAKTSTREHEGLT
WLAQIIMFLMLGLLAIRPSQFPAIAIPBAVLALLIFVARPLAVWLSLMPFNYTQOETS
FVAMVGLRGAVSILLAIMPILGGLDDAQIYFNAAFIIVLSLLVQGWTIKPATTRLGL
TUPPBRGEUNKLEVDLPGTAHBELISYRVAKGSAINQGERIPAMAMPSLVVRDGKSIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          trānslation="mtwkvaingfgrigrnvlraivesgrtdievvaindlgpvetna
Hlirydsihgkepadvkvegdfiivggrefiikvtavrdpatlehkelgvdialectgi
ftardkaahiltagakruivaapadblitvfgvnddcikohluisnascttwrl
pvvkvlddvigidhgfmttihsytgdqptldtmhkdlyraraaalsmiftstgaakav
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GLVLPHLKGKLDGTSIRVPTPNVSVVDFKFIAKRDTTVEEVNEAIKSASNÇKLKGILG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       YQYAGRLRENDLVYLFIAPNYTRLIDRLFASALPVADDDADFFGIFTISPSRPAKEME
AAYGPGLISPAEHAMTIAELIETRLAGKAGYADRVRLGPLVLIVRALDEQEAITGVGI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  YTEEPLVSRDFNHDSHSSIFAIDQTKVMEGNFVRVLSWYDNEWGFSNRMSDTAVAFAK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FVGMHSFGASAPAKDLFKHFGITAEAVVAAVEAKLA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="Atu3738"
7780. .9645
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="gapA"
/note="Atu3737"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="Glyceraldehyde 3-Phosphate Dehydrogenase"
/protein_id="AAL44547.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'note="identified by sequence similarity; putative;
located_using_Blastx/Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  db_xref="GI:17742162"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             product="Na+/H+ antiporter"
protein_id="AAL44548.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="identified by sequence similarity; putative; ORF ocated using Blastx/Glimmer"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="Atu3738"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  db_xref="GI:17742161"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="gapA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11.1
99.00
37.87%
27.22%
8.85%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               _table=11
                                                                                                                                                                                                                                                                                                                                                                                      (1-11040)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                  11040
46
18
63
42
                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ORF
```

CDS

δ 밁 ঠ 밁 ş

97

8996

65

85

Мо. :

```
JOURNAL
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                              COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AE008309/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10130
                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                   Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGCGATATCTATGTGAACGACGCCTTC 10156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGCTTCCACAAGGGCGAGAAAAGAACGATCCCGCCTTCGTCGAAGAACTGGCCGCGAAT 10129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTGCTGGATCACGCCATTTCCTTCGCAACGGACTGCATCGGTGCCCCTGCAGCGGATGCG 10024
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGGGT---GAACCCGTCGCTGAGATGTCGCTTTCCCAGATTGTCCCCACGGTCGAGGAC 9964
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuGlyMetAsnProValGluGlu-----ValLysSerIleTyrGlnThrAsnProAsn 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTCGCAAAAATGÄÄTGATGGCGATATTCTG------CTGCTGGAAAAACACC 10069
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn--- 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGln 166
                                                                                                                                                                                                                                                                                                                                                                                                      Submitted (14-AUG-2001) Bioinformatics, Cereon Genomics, 45 Sidne Street, Cambridge, MA 02139, USA
Approximately 800 bp of telomeric sequence missing from the left end of the chromosome and 200 bp missing from the right end.

Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hinkle,G., Slater,S.C. and Goodner,B.
Complete Genome Sequence of Agrobacterium tumefaciens C58
(Rhizobium radiobacter C58), the Causative Agent of Crown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Hinkle, G., Slater, S.C. and Goodner, B. Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Bacteria; Proteobacteria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Agrobacterium tumefaciens str. C58 (Cereon). Agrobacterium tumefaciens str. C58 (Cereon)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Agrobacterium tumefaciens str. Cof 187 of the complete sequence.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disease in Plants
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AE008309.1 GI:15159562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AE008309 AE007870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AE008309
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 11573)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (bases 1 to 11573)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PheValAsnSerValPhe 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----ProAlaValCysGlnGlu------
           /note="conserved hypothetical protein - Deinococcus
radiodurans (strain R1)"
                                                                                                                                                                                                                                                                                 /gene="AGR_L_2178"
75. .1718
FVVRDTLEELVAEMNA I GGDRLN I DH I RRQ I EARDRE I ENGFSKDAQVTA I HGARRYL
                                                                                                                                                                                                                                                               /gene="AGR_L_2178"
                                                                                                                                                                                                                                                                                                                                                     organism="Agrobacterium
|strain="C58"
                                                                                                                                                                                          transl
                                                                                                                                                                                                                                                                                                                               db_xref="taxon:181661"
                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                            table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsn 128
||| || || || || || || || ||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11573 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            subdivision; Rhizobiaceae group;
                                                                                                                                                                                                                                                                                                                                                                        tumefaciens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear chromosome,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                        str.
                                                                                                                                                                                                                                                                                                                                                                          C58 (Cereon) "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 18-DEC-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      section 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gall
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sidney
```

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
     SGS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /producE="AGR_L_2183p"
/producE="AGR_B664.1"
/protein_id="AAR8664.1"
/db_xref="Gd::15159566"
/translation="MRAAFAALFLPVAGIRKTVGINPSLIIALRISGKDTILKTLKAG
/translation="MRAAFAALFLPVAGIRKTVGINPSLIIALRISGKDTILKTLKAG
/translation="MRAAFAALFLPVAGIRKTVGINPSLIXTECMYLVEETASY
/trypegrective(vsrd)Lkkm/sbQVLNTISEKAGAAAANQFKTLYTECMYLVEETASY
LDGGGRTASKVLPRMASVLYAAESMRLTTRLMQMASWLLLQRAVNNGEMTRDQVLSEK
NKVRLDSTNVDRNAFGMNDLFESFRDLIERSLRLQNRVALLDREIYRPAEATKVPDNE
NSVQAQLNLLRTAFSIN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /trānslation="MADIDEOKAAKORSIKPLIGLFFYLRRYRGLMAAALFALVISSA
TTLALFLAVRRIIDHGFOTPEOGMINSYFAMLLALASAMRYYYVMTIGERVV
ADLRRDVFAHLTTLSQOFEDSNRSGELTSRLTADTVQIRSAFGSSASVALRNIIMCGG
AVAMNIYTSPGLISGLALLAIPTUFFLI AFGRSVRARSRTTOPTLANSAYASETIAA
SRTVQSFNAEVLANARYGASVEAAYQGARAAIGARSVITAVAHALVFGSVVGILMYGA
QNULAGSMTAGTIQOFYLYSVIAASGLGQULSEVWGELAQAGGAAERLSEILNERSPYA
EPAAFVAMPOP PRGEAEFDNUDFVYFLATGRFIVSGLSLKVAAGETVAIVGFSGAGKS
                                                                                              /translation="MSNILPVPALLSSTLFLFLGNGLQGLILPMRGSAEGYSNEILG FLGTSWAAGFVIGCFVAPAIVRRAGHVRAFGSFVALVCLTVLMTGLVVDDVWWITLRA LTGFCTAGTSWLIESKLNERATWESRGWISFLAITLLGVVAQOMIVPMGDVSNTSL FMICGIIYCIAILPATLSKAASPQPLQKVKLDLPALYKNSFVSFVGILMIGIANGAYG TLGAVEGARAGLDFTMLAIMWSVTIFVGALAQFPAGRLSDRIDRRYULAGLGAVK GLAVAAVQPHEVYVLIPMIAIYGAAANALYPIAVAHANDFAASEDFVKVSGGLLLLYG IGTIIGPTLGGAVMTYSGFYALFFVTAVAHVLITAYAIIRSRQRAALSTAEKDNFSTM
                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (5363. .6652)
/gene="AGR_L_2185"
complement (5363. .6652)
/gene="AGR_L_2185"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TVFSLLMRFYDPQQGRITIDGVDIRNVSLADLRARLSIVPQDVAIFASSIHDNIAFGR
PEATREDVRAAAIAAQADGFIERLGDGYDTQVGERGVTLSGGQRQRIAIARAILRDAP
ILLLLDEATSALDAESETLVQKALDELMKTRTTIVIAHRLATVLKADRILVMDEGRIIE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="mKADIHPAYHTIKVVMTDGTEYETRSTWGSEGAVMNLEIDPKSH
PAWTGGNQQLMDRGGRVSKFNKRFGGLGL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3882
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AGEVAGFGGGGMHGYNALEGTFLGGCLFSGRVAGRKVLG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GDRLMRTAKPHRLLDPAMGPLIAVRLHVLTRKTLGGLHTDLEARVLDATGQPVPGLHA
  /gene="AGR_L_2190"
complement (7002. .8027)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="AGR_L_21
complement(4257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    EGTHQSLIRQNGLYARLARLQFQTGPDELRAQA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="AGR_L_2179p"
/protein_id="AAK89662.1"
/db_xref="GI:15159564"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (1821
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    complement (1821
                                                                         MPTTPSPLVTPESIALDPRAPQYPGDDGDYVEKGAGI"
                                                                                                                                                                                                                                                                                                                                                                                                          /note="probable MFS transporter PA4887 {imported}, resudomonas aeruginosa (strain PAO1)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (4257.
                                                                                                                                                                                                                                                                              /product="AGR_L_2185p"
/protein_id="AAK89665.1"
/db_xref="GI:15159567"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'gene="AGR L
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product="AGR_L_2181p"
/protein_id="AAK89663.1"
/db_xref="GI:15159565"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="AGR_L_2181"
/note="50S_RIBOSOMAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="AGR_L_2181"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="ABC transporter ATP-binding protein XF2582
imported} - Xylella fastidiosa (strain 9a5c)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="AGR_L_2179"
                                                                                                                                                                                                                                                                                                                                                             transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl
                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            _table=11
                                                                                                                                                                                                                                                                                                                                                                table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2183"
2183"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . 2185"
763
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2179"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .3620)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .3620)
                                                 .8027)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PROTEIN L31"
                                                                                                 Ś
Ś
                                                 밁
                                                                                                                                                                                                                                                                                                                                      Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                               ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                              score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
85 ThrIleLysSerAspLeuGluIlePheGlyArgLeu-----
```

```
Best Local Similarity:
Query Match:
                                                                                                                                        US-10-034-500-2 (1-218) x AE008309
                                                                                                                                                                                                                                                                                                        Percent Similarity:
9466 CATAGTATGGTCCGGTCCCGAACTCGCAACAATCAGGATCGACCCATGCCCGCTTTCAAG 9407
                                                              65 TyrSerVallleIleProGlnGlySerTrpAspSerCysValAlaGluCysAlaValAsn 84
                                                                                                                                                                                                                                                                                                                                                                                                              Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="AGR L 2194p"
/product="AGR L 2194p"
/product="AGR L 2194p"
/product="AGR L 2159570"
/db_xref="GI:15159570"
/db_xref="GI:15159570"
/translation="MYADVQSTRCGGRRGVKEAVDVESFYLLLLVATVLVLVAAFSSL
/translation="MYADVQSTRCGGRRGVKEAVDVESFYLLLLVATVLVLVAAFSSL
/translation="MYADVQSTRCGGRRGVKEAVDVESFYLLLLVATVLVLVLVAAFSSL
/translation="MYADVQSTRCGGRRGVKEAVDVESFYLLLGAIVASTDAAVEFLLR
/freamplavAlatVGVILTSVPFAGAAALLGISWLEGGLLAGIDSGFLLLFIEEMG
/IGHIRDQVRSTLEVESGTNUPMAIFLTVALVEIVAKGQGLAGIDSGFLLLFIEEMG
/IGUTFGLAGGIMIATVVNRFAADRGLAFITVLALLLVFSTGAIGSGGFLAVVVAGI
/GGVIFGLAGGIMIATVVNRFAADRGLAFIFMAGLAATPSQFFALAIFBAUTAFLIFV
/ARPLAVWLSLMPFNYTQQETSTVAMVGLRGAVSILLAIMFILGGLDDAQIYFNAAFII
/VLVSLLVQGWTIKPVATRLGLIVPPRNGSVDKLEVDLPGTANHELISTRVAKGSAIMQ
/GERIPRMAMPSLVVRDGKSIRYQVAGRLRENDLVYLFIAPNYTRLIBRLFASALPVAD
/DDADFFGIFTISPSRFAKEMEBAYGPGLISPAEHAMTIAELIETRLAGKAGYADRVRL
/GPLVLIVRALDEQEATTGVGISLEPVEPAIGLPIFISFSDILRRARTHLAQRRQLRSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="AGR_L_2193p"
/product="AGR_L_2193p"
/product="AGR_1AK89667.1"
/protein_id="AGR89667.1"
/db_xref="01:15159569"
/translation="MRPDRLASAIRHSMVRPELATNQDRPMPAFKTIDDLNDIAGKRV
/translation="MRPDRLASAIRHSMVRPELATNQDRFHKEERGRPKOFVABMSLS
QIVPTVEDULDHAISRATDCIGAPAADAVAKMONGDILLENTRFHKCEEKNUPAFVE
ELAANGDIYVNDAFSAAHRAHASTEGLARHLPAYAGRTMQAELEALEKGLGQPVRPVV
AIVGGAKVSSKIDLLMNLYKVDALVIGGGMANTFLAARGTMVRSLCEHDLABTAKQ
IMIEAATSGCAIVLPEDGVVARETRAGANHEVDINAFPADAMVLDVGKSVESIKAM
ISRAETLVMNGPLGAFEIEPFDAATVAAAKHAAECTKAGKLVSVAGGGDTVAALNHAG
VSDDFTYISTAGGAFLEMMEGKELPGVAILITTAK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="AGR L_2193"
complement (8219...9499)
/gene="AGR L_2193"
/note="(AF256214) phosphoglycerate kinase; Pgk"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="AGR L_2190p"
/product="AGR 16" AAR89666.1"
/protein id="AAR89666.1"
/dbxxref="GI:15159568"
/translation="MTERLEDIAIKMVADGKGLLAADESTGTIKKRFDSINLESTETA
/translation="MTERLEDIAIKMVADGKGLLAADESTGTIKKRFDSINLESTETA
/translation="MTERLEDIAIKMVADGKGLLAADESTGTIKKRFDSINLESTETA
/translation="MTERLEDIAIKMVADGKGLLAADGTPFVDIIKAKAGSLPGIKVDIGA
/translation="MTERLEDIAIKVYHEAGARFAKMRGVITIGEORPSWGSIKANSQSL
KPMARHPHEFITEGLDGIYERLKKYHEAGARFAKMRGVITIGEORPSWGSIKANSQSL
ARYAALCQQADIVPIVEPEVLMDGEPGTHDIDRCASVTQWULQTVPADLFDARVNLEG
ARYAALCQQADIVPIVEPEVLMDGEPGTHDIDRCASVTQWULQTVPADGGASSEBATAHLS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (9489 ..11417)
/gene="AGR L 2194"
complement (9489 ..11417)
/gene="AGR L 2194"
/note="probable sodium/hydrogen antiporter PA5021
/note="probable sodium/hydrogen antiporter PA5021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (8219.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         QELEKAA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AMNAGYDLPWSLTYSYGRALQDTALKTWGGKSENVAAGQRAFTHRAAMNSLAAKGNWK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DAGEGVSAPAKTVTENEA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="AGR_L 2190"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             note="(AC006919) putative fructose bisphosphate aldolase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   imported) - Pseudomonas aeruginosa
                                                                                                                                                                                                                                      11.7
99.00
37.87%
27.22%
8.85%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-11573)
                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                        Matches:
Conservative:
                                                                                                                                                                                                                                             Indels:
                                                                                                                                                                                                                                                                            Mismatches:
                                                                                                                                                                                                                                                                                                                                                                              Length:
                                                                                                                                                                                                              46
18
63
42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (strain
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                    REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 9
AX434018
LOCUS
 S
                             밁
                                                      ঠ
                                                                                   밁
                                                                                                            ş
                                                                                                                                        US-10-034-500-2 (1-218) x AX434018
                                                                                                                                                                                   Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                            Alignment Scores: Pred. No.:
                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                           FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORGANISM
                                                                                                                                                                                                 Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9064
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               9169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9286
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9346
                               178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          117
                                                                                    124
  50
                                                         37
                                                                                                                17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GTGCCGGTCGCGGATGGCAAGGTGACGGACGCAACCCGTATCGAACGCGTTGCGCCGACC 5287
 MetProLysMetSerTyrGlnGly----
                          GAGCTTGCCAAAAATGAAGCGTTCAGCTTTGGTTCCAAGCTTGAAAATGCAAACGTGCTC 237
                                                GluLeuAlaLysGluAlaIleLeuLysIle--
                                                                                   ATGCTTGATGCAAGCGGCAGCATGGCTAAAAAGATCGGCGGGGTC----
                                                                                                            LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAGGGT---GAACCCGTCGCTGAGATGTCGCCTTTCCCCAGATTGTCCCCACGGTCGAGGAC 9170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuGlyMetAsnProValGluGlu-----ValLysSerIleTyrGlnThrAsnProAsn 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ATTCTGGAACTCTCTTCAAAGGGCGCAAAAGTCATTCTGCTCGCCCATTTCGGCCGCCCA 5227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGATATCTATGTGAACGACGCCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGCTGGATCACGCCATTTCCTTCGCAACGGACTGCATCGGTGCCCCTGCAGCGGATGCG 9110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ||||||
accategacettaacgacattgccggaaagcgcggttctcgcgtgcgcgttgatctcaac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CGCTTCCACAAGGGCGAGGAAAAGAACGATCCCGCCTTCGTCGAAGAACTGGCCGCGAAT 9005
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTCGCAAAAATGAATGATGGCGATATTCTG------CTGCTGGAAAAACACC 9065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGln 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----PheValAsnSerValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence
AX434018
                                                                                                                                                                                                                                                                                                                                                                    Methods for monitoring multiple gene expression Patent: WO 0229113-A 2433 11-APR-2002; Novozymes Biotech, Inc. (US); Novozymes A/S (Di
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Bacillus licheniformis. Bacillus licheniformis
                                                                                                                                                                                                                                                                                                                                                                                                                  Berka, R. and Clausen, I.G.
                                                                                                                                                                                                                                                                                                                                                                                                                                             Bacteria; Firmicutes; Bacillales; Bacillaceae; Bacillus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AX434018.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AX434018
                                                                                                                                                                                                                                                                                                     218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2433 from
                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                                                                                                                                                                                 /db_xref="taxon:1402"
_147 c 177 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ------AlaAlaValIleLeuLeuThrAspGlyHisAsnAsn 128
                                                                                                                                                                                                                                                                                                                             organism="Bacillus licheniformis"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GI:21658826
                                                                                                                                                                      1.38
93.50
34.43%
21.70%
8.36%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----ProAlaValCysGlnGlu------
                                                                                                                                        (1-687)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 687 bp I
WO0229113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  197
                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                  145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA
                                                                                                                                                                    linear
                                                                                                                                                                                                                                                                                                                                                                        (DK)
                                                                                 TCAAAATAC 177
                                                      AsnAlaAla 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        166
57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         191
```

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                     REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 10
CGPRU28B
LOCUS
BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       당.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                  FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACCESSION
                                                                                                                                                                                                                             JOURNAL,
                                                                                                                                                                 source
                                                         repeat_region
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           334
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHis 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetProProGlnAla-----AlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AATGACATCAAAAGAATTTTTACTCAGGAAGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluPheValAsnSerValPheCysGlnGluGlnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGATCGGCTTTGATTATGAAGGAGACTTCCACGGACAATTGACCAGTATCGCAGCAGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCAATCCGGTAAAAGTCGCAACAGAACTGCGCAAATCCAATGCGGTTGTC-----AAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGAGAGTTTTCGGTTCAGAGGGAAACAATAAAAATTCCGGAAAAGTGCAGTCCTGCAAT 297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGCGGCGGTGAATATTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CTGGACAACAACGGGAAAAACGTCGTCTATCTGCTGACAGACGGTGAGGAAACATGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCGACCGGATGGACACCGATCGCAAACGCGCTGCAAGATGCAAAAAACGCGCTTGACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ArgLeu-----ThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGln 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GCAATCAGAGGGGTGTACGGCTTCCAAACGTATGAC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CGPRU28B
C.griseus
X79299
X79299.1
                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 2843)
Fatyol,K., Cserpan,I., Praznovszky,T., Kereso,J.:
Cloning and molecular characterization of a novel
specific centromere sequence of Chinese hamster
Nucleic Acids Res. 22 (18), 3728-3736 (1994)
                                                                                                                                                                                            2 (bases 1 to 2843)
Fatyol, K.
Direct Submission
Submitted (16-MAY-1994) K. Fatyol,
Biological Research Center of the,
6701 Szeged, POB 521, HUNGARY
                                                                                                                                                                                                                                                                                                                                                                                                                              Cricetulus griseus
Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             X79299.1 GI:587100 centromeric region; Chinese hamster.
                                                                                                                                                                                                                                                                                                                                                                                                   Cricetulus.
                                                                                                                                                                                                                                                                                                                                                                                                                  Mammalia; Eutheria;
               718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrp 74
               ø
           /note="tandem repeat"
/evidence=experimental
751 c 731 g
                                                                       /clone="pRU2.8b"
/clone_lib="CHO-K1
/note="centromere"
                                                                                                                    /organism="Cricetulus
/db_xref="taxon:10029"
/chromosome="2"
                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        repetitive
                                                            .2843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ----GAGCAAAGCTTCCGCAATTCCTTAAACGGCATCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             repetitive DNA; satellite-like sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2843 bp
DNA, clone
                                                                                      genomic
                                                                                                                                                                                                                                                                                                                                                                                                              Craniata; Vert
Sciurognathi;
                                                                                                                                               griseus
              643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA
PRU 2.8b.
              rt
                                                                                                                                                                                                            Institute of Genetics
Hungarian Academy of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                202
                                                                                       library"
                                                                                                                                                                                                                                                                                                                                                                                                                Vertebrata;
chi; Muridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAGGCAAAAACTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         linear
                                                                                                                                                                                                                                                                                                                                                                  and Hadlaczky, G.
                                                                                                                                                                                                                                                                                                                                                                                                                Euteleostomi; Cricetinae;
                                                                                                                                                                                                             of Sciences,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ROD 15-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       333
```

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                    REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                      RESULT 11
CGPRU28A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                            LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멂
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
DB:
                                                                                                                                                                                                                                SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score:
            FEATURES
                                                                                                                                                                                                                                                          KEYWORDS
                                                                                                                                                                                                                                                                    VERSION
                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                              JOURNAL
MEDLINE
                                                                                                    PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Local
source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                       131
                                                                                                                                                                                                                                                                                                                                                                                                               472
                                                                                                                                                                                                                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  415
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         121
                                                                                                                                                                                                                                                                                                                                                              532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ហ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMet 24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LysIleAsnAlaAlaMetPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLysGluAlaIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGCCTGCACGGGTAGAGTTCCGAGTCCAGATTCCCTT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scores:
                                                                                                                                                                                                                                                                                                                                                                              MetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATCAA - - - TGGGAGCAGATGCAGCCAACCCTTGAGCCCCCTCTGGACGAAGAAGTCTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCTGAGCCCAATGAGGCAGTGCACGGCAGCGAGACTGAGCGTGCACAGGACAGCTTGTTG
                                                                                                                                                                                                                                                                                                                                                                                                               CAAGCTCTACTGGATGACCTCTGTGACACACACTGCAAGGCTTCATCGTCTCATCACGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                      GlnAlaAlaValIleLeuLeuThrAspGlyHis----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluThrValIleAsnGlnMetProPro------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGAAAGAGATCCAAGATGACCAAGATĊTĊCGAĊĊĊTGCAGĠÀĊTCTCTGGATCCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProGlnGly-----SerTrpAsnSerCysValAlaGluCysAlaValAsnThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTACCGAATGTCCTGGCCTGCA-----GAGACGGCACAGCCCTCTCCACCAGACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCACTGGCTGCATCACCTGTGGGCACAGGCACTTTGACCATGACTTGCCCATCAACC
                                                                                                                                                                                                                                                                                                                                                              TGCCGTCCTCTTCCAGAAAGCAAGACCCTT---ACACCAAACCCCAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity:
      Direct Submission
Submitted (16-MAY-1994) K. Fatyol,
Biological Research Center of the,
6701 Szeged, POB 521, HUNGARY
Location/Qualifiers
                                                                                                                                                                                                                                                                                  C.griseus repetitive X79298
                                                                                                                         Fatyol, K., Cserpan, I., Praznovszky, T., Kereso, J. & Cloning and molecular characterization of a novel specific centromere sequence of Chinese hamster Nucleic Acids Res. 22 (18), 3728-3736 (1994)
                                                                                                                                                                                                    Cricetulus griseus
Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                         Chinese hamster.
                                                                                                                                                                                                                                                                                                           CGPRU28A
                                                                                                                                                                                                                                                                      X79298.1 GI:587099
                                                                         Fatyol, K.
                                                                                                                                                                                            Cricetulus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----LysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIle
                                                                                                                 95023
                                                                                                                                                                           (bases 1 to 2847)
                                                                                     (bases 1 to 2847)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       7.83
93.50
42.05%
23.86%
8.36%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              x CGPRU28B
                                                                                                                                                                                                    Chordata;
Rodentia;
                                                                                                                                                                                                                                                       repetitive DNA; satellite-like
                                                                                                                                                                                                                                                                                            DNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (1-2843)
                                                                                                                                                                                                                                                                                            2847 bp
A, clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                    Craniata; Vertebrata; Sciurognathi; Muridae;
                                                                                                                                                                                                                                                                                              pRU
                                  Institute
Hungarian
                                                                                                                                                                                                                                                                                              DNA
U 2.8a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2843
42
59
43
                                  of Genetics,
Academy of Sciences,
                                                                                                                                                                                                                                                                                                                                                                                                                                      AsnAsnLeuGly
                                                                                                                                                                                                                                                                                                                                                                                      146
                                                                                                                                                                                                                                                                                                                                                              576
                                                                                                                                                                 and
                                                                                                                                                                                                                                                       sequence
                                                                                                                                                                                                     Euteleostomi;
; Cricetinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCCTCG
                                                                                                                                                                                                                                                                                                           ROD
                                                                                                                                                                Hadlaczky,
                                                                                                                                                                                                                                                                                                           15-SEP-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44
                                                                                                                                                                                                                                                                                                                                                                                                               531
                                                                                                                                                                                                                                                                                                                                                                                                                                         130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         180
                                                                                                                                                                 Q
```

```
BASE COUNT
ORIGIN
                                                                                                                                                                RESULT 12
CEL243182
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment
Pred. No.:
                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Score:
                                                                                                                                                                                                                   밁
                             REFERENCE
                                                                                                                                                  DEFINITION
                                                                                              KEYWORDS
                                                                                                                         ACCESSION
                                                                                                            ERSION
                AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              repeat_region
                                                                                                                                                                                                                   532
                                                                                                                                                                                                                                            131
                                                                                                                                                                                                                                                                        472
                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                           415
                                                                                                                                                                                                                                                                                                                                                      107
                                                                                                                                                                                                                                                                                                                                                                                355
                                                                                                                                                                                                                                                                                                                                                                                                                                    295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       241
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                121
                                                                                                                                                                                                                                                                                                                                                                                                         87
                                                                                                                                                                                                                                                                                                                                                                                                                                                              70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            υı
                                                                                                                                                                                                                                                                                              GlnAlaAlaValIleLeuLeuThrAspGlyHis-----AsnAsnLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCACTGGCTGCATCACCTGTGGGCACAGGCACTTTGACCATGACTTGCCCCATCAACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCTGAGCCCAATGAGGCAGTGCACGGCAGCGAGACTGAGCGTGCACAGGACAGCTTGTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLysGluAlaIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ĠĊĊĠĊĊĬĠĊĂĊĠĠĠŦĂĠĂĠŤĬĊĊĠĂĠĬĊĊAĠATĬĊĊĊĬĬ---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMet
                                                                                                                                                                                                                   TGCCGTCCTCTTCCAGAAAGCAAGACCCTT---ACACCAAACCCCAAC
                                                                                                                                                                                                                                            MetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsn 146
                                                                                                                                                                                                                                                                                                                             GATCAA---TGGGAGCAGATGCAGCCAACCCTTGAGCCCCCCTCTGGACGAAGAAGTCTAT 471
                                                                                                                                                                                                                                                                                                                                                      GluThrValIleAsnGlnMetProPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCTACCGAATGTCCTGGCCTGCA-----GAGACGGCACAGCCCTCTCCACCAGACGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LysIleAsnAlaAlaMetPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Scores:
                                                                                                                                                                                                                                                                       CAAGCTCTACTGGATGACCTCTGTGACACACACTGCAAGGCTTCATCGTCTCATCACGGA
                                                                                                                                                                                                                                                                                                                                                                                ATGAAAGAGATCCAAGATGACCAAGATCTCCGACCCCTGCAGGACTCTCTGGATCCCTAC
                                                                                                                                                                                                                                                                                                                                                                                                        LysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProGlnGly-----SerTrpAsnSerCysValAlaGluCysAlaValAsnThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----LysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIle 69
                                                   AU243182.1 GI:5262810
inositol 1,4,5-trisphosphate 1
Caenorhabditis elegans
Caenorhabditis elegans
Eukaryota, Metazoa, Nematoda,
                                                                                                                                 CEL243182 8889 bp mRNA Caenorhabditis elegans mRNA for inositol receptor (itr-1 gene), splice variant 4.
1 (bases 1 to 8889)
Baylis, H.A., Furuich
Sattelle, D.B.
                                                                                                                       receptor (itr-1
AJ243182
                                         Rhabditoidea; Rhabditidae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         711
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1. .2847
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /organism="Cricetulus
/db_xref="taxon:10029"
/chromosome="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /evidence=experimental
755 c 729 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /clone_lib="CHO-K1
/note="centromere"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /clone="pRU2.8a"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="tandem repeat"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x CGPRU28A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            7.84
93.50
42.05%
23.86%
8.36%
               Furuichi, T.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-2847)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
               Yoshikawa, F.,
                                         Peloderinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         genomic
                                                                                              receptor;
                                        Chromadorea; Rhabdıtıda;
loderinae; Caenorhabditis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            griseus'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          library"
                                                                                                itr-1
                  Mikoshiba, K.
                                                                                                                                                  1,4,5-trisphosphate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2847
42
32
59
43
8
                                                       Rhabditida;
                                                                                                                                                                 linear
                                                                                              gene;
                                                                                                                                                                                                                    576
                                                                                              splice
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCCTCG 120
                and
                                                                                                                                                                 INV 16-DEC-1999
                                                                                                variant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            44
                                                                                                                                                                                                                                                                                                    130
                                                                                                                                                                                                                                                                                                                                                                                  414
                                                                                                                                                                                                                                                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24
                                                                                                                                                                                                                                                                         531
                                                                                                                                                                                                                                                                                                                                                       115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          294
```

```
FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5'UTR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         misc_RNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Inositol 1,4,5-trisphosphate receptors are strongly expressed in the nervous system, pharynx, intestine, gonad and excretory cell Caenorhabditis elegans and are encoded by a single gene (itr-1) J. Mol. Biol. 294 (2), 467-476 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (15-JUN-1999) Baylis H.A., Department of Zoology, University of Cambridge, Downing Street, Cambridge, CB1 3EJ, UNITED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KINGDOM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Baylis, H.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           .0610772
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (bases 1 to 8889)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RTINIPAMY SIGGENT TO TO TO TO TO THE STATE OF THE STATE O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Submission
                                                                                                                                            AASDEWROLYVDNASFEELBAMMKDEKESKGRSSDŠRRKLKYHI ELVRLĪAMCTRGKN
GNTELKCASQI I PUDHI VRVOTAKOCLVEWKTVLOLLLLHCY I DTDAEMKDA YKTEYVD
HILNNILLEDI RSLRVEKLTGAETATLEHY I CHTVTEVLI KFFEAPYSALQAKVOVHH
HIKKTESEVLLELTYLEKGKLRGSKSRNWYRVAECI KRLTKWAEEHNI TLEATLAGPO
MSGQTSVRÇKWQAASSAKWI GIGKRLARQNTLAPGHRLYGTSSMTEHTSANVVTCY
HMMIGEEKFLJHPLHAASSAKWI GIGKRLARQNTLAPGHRLYGTSSMTEHTSANVVTCY
HMMIGEKFKJLHPLHAASSAKWI OJGKRLARQNTLAVGHRLYGTSKALTQHCKT
HONOKODNLCARVOJTLCKMCDCTKQQLTHQGHRVYNSSVEKGQQLRQLLIQRY FGHH
NNHHPPLDRQQSKIĞEVIEAVKEKKEETWSQERDLYAIQCKLNDAGASDLYTDIIIME
PSREIFLKAIHLARALLHEGNDKVQHSFYMRMKQKDIHEPFFKAILTRIQTAQNRLKS
DMMSCSDSKEKVSSTVLTPLIDAGDTGFNGALFEVPQQVRHPSISEMSQLSNDLTHSI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KSNKYITVOKNSPAKRERNAMKVYLDRAGNEGSWFIIEPÄYKHYAIGDNVŚAGNKISL
IPNSVSTTQACHYKSOLHLSSENLLDHQSAAEVNCLNEEPTEWOYMMFLLFDENQONSV
KSGDVVRLFHADQOFELTLDTIEKONEPTDVVELRMTNREPSAADATSSRALMEVOVVO
TNAYRGGTAKWNKAYRFKHLATDMYLSAEPSQVQVKPANNGRPFLLSALSQKSRPMLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LYTESSSNQEQRGFLSTLGLVDDRCIVELKDGRPESPPKKFRDCLFKVCPVNRYAAQK
HLWTEQKRFQTGDSMFDDDLMNKLKVAADKEREENESEPQKTLGNVIQYGSMVQLLHV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="inositol 1,4,5
/protein_id="CAB45863.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="itr-1"
/gene="itr-1"
/function="intracellular IP3 gated calcium channel"
/mote="splice variant 4: exons (1-, 2-, 3+) (10-, 11+)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation="MDYDYRRRVLERNIGMALPSRKLTIANSIDHGNNGNLHIGDIIS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      db_xref="GI:5262811"
db_xref="SPTREMBL:Q9Y0A0"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="trans-spliced leader SL1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'gene="itr-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="itr-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              isolate="Bristol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'organism="Caenorhabditis elegans"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      country="United Kingdom"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           xref="taxon:6239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              8889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        stage="mixed"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ="itr-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1,4,5-trisphosphate receptor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of.
```

```
US-10-034-500-2 (1-218) x CEL243182 (1-8889)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   BASE COUNT
ORIGIN
                                                                                                                                                                                                                                  6170
                                                                                                                                                                                                                                                                                                                                                                                                                8909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5969
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       6029
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       5909
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        polyA_site
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3'UTR
161 LysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                             70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           44
                                                                                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15 AsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluPro 34
                                                                                                                                                                    LeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIle 140
                                                                                                                                                                                                                             TCCACTGATGCATTGCCTCCAGAAGTTGCACTTGTTGAACCAATCCTTCGTGTTCTTCAA 6229
                                               GATAGAACAAATCACAACTTGGTTTCTGAAACTCTTAGCTTC
                                                                                       TyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGly 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuLysIleAsnAlaAlaMetProLysMetSer------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTCTTCAAAGCTATTTTGACTAGAATTCAAACAGCTCAGAACAGATTGAAAAGTGATATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATGATAAGGTTCAACACTCTTTTTACATGCGGATGAAGCAAAAAGACATCCATGAACCA
                                                                                                                                      ValileAsnGlnMetProProGlnAlaAlaValile-----
                                                                                                                                                                                                                                                                                                                      TTGACACACTCGATTCCTGATTTAGCACCTTATCAAGAT------GAAGAAAAA
                                                                                                                                                                                                                                                                                                                                                              Leu---GluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThr 108
                                                                                                                                                                                                                                                                                                                                                                                                             CCACAACAAGTTCGTCATCCTTCAATTTCGGAA----ATGTCCCAATTAAGCAACGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        ProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCTGGTGATACGGGTTTCAATGGAGCATTATTTGAA-----GTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGAGTTGCAGTGACAGTAAACCAAAAGTTTCATCTACTGTTCTAACTCCTCTAATTGAT 6028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2875
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----TyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIle 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="itr-1"
8861. .8866
/gene="itr-1"
/note="putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LFICILGLLVHPMIYCILLFDIIFTEETLQNVIASVTRNYQSIVWTGLLALILLYFFS
ILGFLYFRHDFYLEVDPVENDSSATISSGIPSETCPSEGCPGLQPSEKDNDDEKKVK
SCETLWMCILQTGYQGLRNGGGIGDVLRNPAPWEDMFIRVAYDMTFFVVLIVIVLNIL
IFGVIIDTFGDLRAEKMEKEQILKNNCFICGLDRSRFDNRSVTFETHRETEHNIMHYL
YYIWLQIKDETEFTGPESYVAQCVKDRNLDWFPRMQALSLQDSELDTDQSEVKQMKD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VNALVARYYPLPEHSNSSISLGNLYSWFÄVFSSFLLAHYLRHDKIYLHKTSLLILASL
CFLLLSSIGVTLTLYIFGILQLVNKIVHVVAFVSNKGLEDRPIABILACRNLHYLLVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NVDASGI VSIHTEKNI SSSLDDKFNDDDI PSVDPREVGHNI YILAHQLA IHDGELEIW
LDGSDEKKDDLTREALNYYKERTAQI EI VRRDRTLERVVF PINDI CSYLTKDTKDYVY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GLNI I I SLVLNE I KPLADDHMELALE I KSQASKLLLA I MESRHDGENANRVLRIMANN
SGGPKQLVHA I KQAYEMTNSNHHMLKS I SRDLFRQAEDDLKKKSGPQ I TVNTVTL PE I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /evidence=experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8663.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NNTERDNQGSKVTEFFDEWETMYHEMIWQRKLQDRKWLSWCAFRLPLWTRLSFHFAFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              QLLQMMTLMREI I SQNEESRAFMEQFQPR'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="itr-1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31.5
93.50
37.13%
21.94%
8.36%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----LysIleGluLeuAla-------LysGluAlaIle 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         . 8889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2579
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8889
52
36
72
77
                                                                                                                                                                                                                                                                                                                      6169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5968
  179
                                               6325
                                                                                                                                                                                                                                                                                                                                                                                                             6121
                                                                                                                                                                                                                                                                                                                                                                                                                                                        89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5908
                                                                                                                                                                                                                                                                          120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           54
```

Score:

밁

ঠ

밁 δ 문 á

-----TTGGATACAGTCTGTGGATCTACAAAAGGAAGTCTTGGAAGTGTTTGGTGAA 6376

밁

Ś 밁 δ 밁 S 밁 δ 밁 S 밁 á 밁 S

```
MEDLINE
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AP003587/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Snoo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6437
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     6377
                                           CDS
                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGlnGlu 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTGGAGAGCACAATTTCTCTCTTATTACACAAACACTTGCCACGTTGACTGAATTCTGT 6436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAAGGTCCA----TGTCATGAGAATCAGAATACAATGGCAATGCAAGAA 6481
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AP003587
Nostoc sp.
AP003587 BA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Kaneko,T., Nakamura,Y., Wolk,C.P., Kuritz,T., Sasamoto,S., Watanabe,A., Iriguchi,M., Ishikawa,A., Kawashima,K., Kimura,T., Kishida,Y., Kohara,M., Matsumoto,M., Matsuno,A., Muraki,A., Nakazaki,N., Shimpo,S., Sugimoto,M., Takazawa,M., Yamada,M., Yasuda,M. and Tabata,S.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (02-MAY-2001) Takakazu Kaneko, Kazusa DNA Research Institute, The First Laboratory for Plant Gene Research; Yana 1532-3, Kisarazu, Chiba 292-0812, Japan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Complete genomic sequence of the filamentous nitrogen-fixing cyanobacterium Anabaena sp. strain PCC 7120 DNA Res. 8 (5), 205-213 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AP003587 BA000019
AP003587.1 GI:17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (E-mail:kaneko@kazusa.or.jp,
URL:http://www.kazusa.or.jp/cyanobase/,
Tel:81-438-52-3935(ex.2338), Fax:81-438-52-3934)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bacteria; Cyanobacteria; Nostocales; Nostocaceae; Nostoc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Nostoc sp. PCC 7120 DNA.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kaneko, T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21595285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 343550)
                                                                                                                                                                                                                                                                                                                                            /protein id="BAB73418.1"
/db_xref="GI:713889"
/translation="MRKKKSAILEAVHETAEDLHKAGLMNQTTLREFEHLCLPPIEPL
EPLQIKEIRESSQVSQAVFARILNISTSTVQKWEIGQKRPSGASLKLLHLVKNRGLNS
                                                                                                                                                                                                                                                                                      complement (504. .782)
/gene="asl1720"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (94. .411)
/gene="all1719"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="synonym:Anabaena sp. PCC7120"
complement (94. .411)
                                                                                                                                                                                                                                                complement (504. .782)
/gene="asl1720"
                                                                                                                                                                                                                                                                                                                                                                                                                                                              hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="all1719"
complement'
                                                                                               KKRIAKPGKGKSGGFRTLIATNNEDVGFLFLAFQKTNAVTLTHMKKKL'
                                                                                                                                                                                                             /note="ORF_ID:asl1720
hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="ORF_ID:all1719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             organism="Nostoc sp.
/gene="alr1721"
/note="ORF_ID:alr1721"
                                                                                                                 /protein_id="BAB73419.1"
/db_xref="GI:17130810"
/translation="MKIYKNRTFDRWARKEGLKNLSLCNAVNEMAPGLYDADLGGGLF
                                                                                                                                                                                                                                                                                                                                                                                                                           cransi
                                                                                                                                                                                                                                                                                                                                                                                                                                       codon_start=1
                                                                                                                                                                          trans
                                                          gene="alr1721"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PCC 7120 DNA,
                                                                                                                                                                                               codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GI:17130808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             xref="taxon:103690"
                                                                                                                                                                      table=11
                                                                                                                                                                                                                                                                                                                                                                                                                           table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  343550 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        sobu pp DNA linear BCT complete genome, section 7/19.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PCC 7120"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  28-NOV-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gg
                                                                                                                                                                                                               SGC
```

```
/protein_id="BAR73422.1"
/protein_id="BAR73422.1"
/db xref="GI:17130813"
/translation="MSVFSRPLPPVFNSIEEERLHRKQRLAAAFRLFGKFGFSEGIAG/translation="MSVFSRPLPPVFNSIEEERLHRKQRLAAAFRLFGKFGFSEGIAG/transperfuptwvhplgkyfghIrvsDLVLvnrDgDVVKGDALINQAAFAIHSQIH HITARDPEFTDHFWVNPLGKYFGRILDPLTQDACAFYEDHALLDDVTGVVLETSEGK EARPDVPAAHAHSIYGKAMGSLGRILDPLTQDACAFWYISLERSCQAQLLAEAAGQPKIIGHE TARLTHSQVGBPKAGWFSFQPLYDRVAREEPELFD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TAVRNILDKGNKALAKTIQQNKDADVKLMELDLANLASVKNFAENFRKNYLRILDLLINN AGVMI PYSKRYTDGFBLOFGYMHIGHFRALTGGLEFFLISTEGSH I VNVSSGAHNNGKI DFDLNWEGRSYAKWKAYGDSKLANLYFTYELDKKLKNORI DTLVTASHFGWTATELD DFDDLNWEGRSYAKWKAYGDSKLANLYFTYELDLKKLKNORI DTLVTASHFGWTATELO RTAGGIVKYLMGIVAQDI YMGALFTLBAAI EAGLKGAEYFGPNGFMEMRGYPI KVESN ELSKUQALAKKLWVVSEKLTDVKFEFNKKAQSAGK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                  /tränslation="mrhkdnkknqaicdaaielitangfadtsmskiakaanvspati
yvyfenkekllnkiylfvkqeisaeilkgvnqnlsvekafkmimnnyykyaiknpvrf
afteqfanspmvdrickdeslsyfkmidlfnrgkeekvfkdipleiftaftfabltg
/translation="mflkpfsglmvIAsltlngIAITysgrsaIAeaksnnfylQvga
DQRGFPIALDLASINGTNFTLVQQHGEGIAKRRLHAACSQGRLFTKKFSLYAANGKLT
SEDKTEQEIFFKPKTFDAASMEIVCRVANNHQKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (2701. .3462)
/gene="all1723"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (2701. .3462)
/gene="all1723"
                                                                                                                                                                                                                                       complement (5492. .5902)
/gene="all1725"
                                                                                                                                                                                                                                                                                          complement (5492.
/gene="all1725"
                                                                                                                                                                                                                                                                                                                                                                                                  TTIANFPGADFASGIVPKERKADGRSTQYTWIFDDNVSVKNPFGVFTNTNPIRQTGII
PRLLLLAPALFLWWILLLYLSLPISLTNVAIASSIYFACLLTLTYLSRFMDAQLAWTM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="ORF_ID:all1724
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (3764.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (3764. .5167)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="ORF_ID:all1723
probable aldolase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /transl_table=11
/protein_id="BAB73421.1"
/db_xref="GI:17130812"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="CRF_ID:alr1722
probable oxidoreductase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="alr1722"
!569. .2504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LIKEHFSGALILDEKMLETTYKIAWDAVTN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /product="transcriptional regulator"
/protein_id="BAB73420.1"
/db_xref="GI:17130811"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transl_table=
                                                                      /transl_table=11
/protein_id="BAB73424.1"
/db_xref="GI:17130815"
                                                                                                                                                                                   /note="ORF_ID:all1725
unknown protein"
                                                                                                                                                                                                                                                                                                                                                   VRHWYNWNIWQPEDSKS"
                                                                                                                                                                                                                                                                                                                                                                            ISLVLLTLTWGLGSTRSASLAAIICTIAGAVVPVLGLLVPYSGLTLSVAGLLSVIWLA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="all1724"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1/transl_table=11
                                                                                                                               codon_start=1/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene="all1724"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="alr1722"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 translation="MKNEKWNAENIPPQKGRLAIVTGSSSGIGYETARVLANKQASVI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   . 2504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .5167)
                                                                                                                                                                                                                                                                                                                     .5902)
```

20

72387

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                          Score:
                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                        SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SdO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                              Мо
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /transl tak'
                                                                                                                                                                                                                                                                                                                      /translation="mthktngsdachsvvsqmeldllaallepedaaypwnpsddese
Tyfeelerkfaqdvsdeefttraqvfydkldhlwsgvtpssyynhttlsvvvdhlqen
Lhtafatgipqnwlnalatkaaeifasqqslgeqlvecvqsvlftweaddllifarpy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LVGAALSTTLILLSPLLNLFIFIFREVLPGSVPPIDQPVSSLTELFVGYFFGAGLMEE
LLKALPILGVYLIALGLPPAWRERVGVWEPLDGILLGTASAVGFTLLETLGQYVPPAAS
LQAGTEVGLQVLIARILGLPAGHMAYSGYLGYFIGLAALKPRHAKQILAVGYLSAAAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tränlation="mygknarhnafirlivsgngaafgsesryslitskevvigrdpscq
vvldamyrmysrrhavrpvassydskeswylcdinsangtriyggrlygcgelhag
drislgadgpopleexnapoptrityngvaplesakhpekdsvsftolepitstrgd
ltrkaylivbgiltyvpvvlmbatygrpqanqvivatyialaayyfiyrlcgkbkpmmv
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /gene="alr1728"
/note="ORF_ID:alr1728
hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /gene="alr1727"
6919. .7431
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6919
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (9666. .10310)
/gene="all1729"
/note="ORP_ID:all1729
unknown protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HALWNTAGHSNNLLLVVVGVLSYAFLMAAILKARALSPTRSQNFATRFLDPKS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="alr1728"
8064. .9401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="mwgdlsgyvwgksdqeiavpvvnerdkqtyygavdyllgelvlk
aydagnskntinylbyllanspdqrllifwdgasyhrskeirgpldsvnqslpteqwk
ihcvrpapncpvqnpiediwlqaktwvrrpcalipsfshlkwifewpirhttpdpdtl
                                                                                                                                                                                                                               complement (10795. .12372)
                                                                                                                                                                                                                                                                          complement (10795. .12372)
                                                                                                                                                                                                                                                                                                  AYSMRSSEGONLTSIVDNVNNOEWSALSEVEQAKLSVAIAYYAIRQLNDSPSES"
                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
/protein_id="BAB73428.1"
/db_xref="GI:17130819"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (9666. .10310)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /transl_table=11
/protein_id="BAB73427.1"
/db_xref="GI:17130818"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             QMYGTYSKIK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="transposase"
/protein_id="BAB73426.1"
/db_xref="GI:17130817"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KADENAVAEKKRD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /protein_id="BAB73425.1"
/db_xref="G1:17130816"
/translation="MKSQHLQATTLAGEVSQQYLKEETALNAIAELQDFIDMCPDARE
/rranslation="MKSQHLQATTLAGEVSQQYLKEETGLDGLRLNYKGRKSYLNA
VRKALAVKLVYQGYLYDEIQKILDVSRGSITGWKQAYEETGIDGLRLNYKGRKSYLNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="all1729"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /gene="alr1727"
/note="ORF_ID:alr1727"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 KQLQEVLSWLQTKDCWELGELEYQLAFEYDVVYESKQSYYDLFSEAGISWKKTTKVNP
                                                                                                                                                                          /note="ORF_ID:all1730
similar to HetF protes
                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'note="ORF_ID:alr1726"
    3.47e+03
92.50
42.01%
23.29%
8.27%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  table=11
                                                                                                                                                                        protein"
Conservative: Mismatches: Indels: Gaps:
                                                                                      Length:
Matches:
343550
51
41
90
97
10
                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                          SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                        VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  RESULT 14
HSIATIH3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                            REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2 (1-218) x AP003587 (1-343550)
                                                                                                                                                                                                                TITLE
JOURNAL
    MEDLINE
                      JOURNAL
                                                                TITLE
                                                                                                                                                                                                                                                          AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     72101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           72221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               72341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       72446
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         72500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              72542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              72599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72386
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        _
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTCTACGATGATGCAGTAGATACCGTTGTTCCACCCCCAACCTGTAACTGACAAACCTGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuGlnLeuLeu-----GlnAsnProAlaValCysGlnGluPheValAsnSerVal 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATACTCACAGCCACGTCAACCCCAAAAAGCGGAGGAAGGTATTACTACAACTACTTTGGGT 72162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TTATCGGGGGGATGGCTTAAGGGCTGCGAATATGTCAAGCATCAACTCGATCCGCAAAAA 72282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTCAAAAAGTCCATACGTCAGGTGAGGGCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCGGAAATACCCGAATCT---CCCCGACGCAACCTTAACCTTTCCCTTGTAATTGACCGC 72543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaGluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTAGATCTGTAGTAGGTCAAAACTTGAAAGTAACACTAGAGTTAGCTGATGGTATC 71985
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TTCTACTTCATTCAAAGCATTGATGAAGCAGCAGCAGTTTTTTAGCATTGAACTAGATAGT 72042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTGCTCAAGGTTTCAATGAGGATCTACTAATTGGGATGGCGAGAGCTGCTAATGGCAAC 72102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATTAATCGTGCTGCTGCTGACTGATGGTCACGCCAATATGGGTATTCAAGACCCAAAG 72222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn-----Pro 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValGlyAspGly---IleLysMetHisGluThrValIleAsnGlnMetProProGlnAla 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrPro 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysVal 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCGGCTGAATCTGTG-----GTAGATCAACTTGAGCCAAAGGATATTCTCTCAGTGGTC 72447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGly 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGGTTCTATGGCAGGTGCAGCTTTACATCATGCGCTGAAG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerGlySerMet-----MetMetLysHisValAlaValArgGluProLysIleGluLeu
                                                                           Submitted (23-JUN-1992) J. Bourguignon, Institut National de la Sante et de la Recherche Medicale INSERM, Unite 295 Faculte de Med-Pharm de Rouen, Ave de l'Universite BP 97, F-76803 St Etienne Rouvray Cedex, FRANCE 2 (bases 1 to 2807)

Bourguignon, J., Diarra-Mehrpour, M., Thiberville, L., Bost, F., Sesboue, R. and Martin, J.P.
                   deduced amino-acid
Eur. J. Biochem. 21
                                                                                                                                                                                                                                                                       Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 2807)
                                                                                                                                                                                                                                                                                                                                            Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                        X67055.1 GI:28
H3 heavy chain;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  2807 bp mRNI
H.sapiens mRNA for inter-alpha-trypsin
X67055
    93215656
                                                           Human pre-alpha-trypsin inhibitor-precursor heavy chain. cDNA and
                                                                                                                                                                                                                                                      Bourguignon, J.
                                                                                                                                                                                                                                                                                                                                                                                      proteinase inhibitor.
                                                                                                                                                                                                                                                                                                                                                                sapiens.
                                                                                                                                                                                                                                    Submission
                                                                                                                                                                                                                                                                                                                                                                                                                              GI:288562
                                                                                                                                                                                                                                                                                                                                                                                                      inter-alpha-trypsin inhibitor heavy
                      ld sequence
212 (3), 7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----SerValLeuValAspGly 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      A linear inhibitor h
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGGTATTACTAAC 72342
```

173

r PRI 30-MAR-1993 heavy chain H3.

chain;

PUBMED

```
Best Local Si
Query Match:
DB:
8
                                                                                                                         S
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                    Ś
                                                                                   밁
                                                                                                                                                                         문
                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                  ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-034-500-2 (1-218) x HSIATIH3 (1-2807)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Local Similarity:
  1125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                     1068
                                                                                                                                                                           1008
                                          110
                                                                                                                                                                                                                                                                 966
                                                                                                                                                                                                                                                                                                                                                                                                                                        867
                                                                                                                                                                                                                                                                                                                                                       906
                                                                                                                              90
                                                                                                                                                                                                                                                                                                          56
                                                                                                                                                                                                                                                                                                                                                                                    36 IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   16
                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                        TTTGTGATTGACATCAGCGGCTCCATGGCTGGTCGG------
                                        IleAsn------ValIleLeu 121
                                                                                   ATGGAGGATAAAGGA---ATGACCAACATCAATGACGGGCTGCTGAGGGGCATCAGTATG
                                                                                                                            LeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrVal 109
                                                                                                                                                                           GAGCACTTAGTCCAGGCCACGCCCGAGAACCTCCAGGAGGCCAGGACGTTTGTGAAGAGC 1067
                                                                                                                                                                                                                    SerCysValAlaGluCysAla-------ValAsnThrIleLysSerAsp
                                                                                                                                                                                                                                                                                                       GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn
                                                                                                                                                                                                                                                                                                                                                  TTAGAGCAGACAAAGGAGGCCCTTCTCAGAATCCTGGAAGATATGAAAGAGGAAGACTAT
CTGAACAAGGCCCGAGAGGAGCACAGAATCCCAGAGAGGAGCACCTCCATTGTCATCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     See also
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="inter-alpha-trypsin inhibitor heavy chain H3"
/protein_id="Char7439.1"
/protein_id="Char7439.1"
/db_xref="G1:288563"
/db_xref="G1:288563"
/db_xref="G1:288563"
/db_xref="GNISS-PROT:Q06033"
/db_xref="GNISS-PROT:Q06033"
/translation="MYALSHLGSALQLGSLCFPRSPFRLLGKRSLPEGVANGIEVYST
/translation="MYALSHLGSALQLGSLCFPRSPFRLLGKRSLPEGVANGIEVYST
/translation="MYALSHLGSALQLGSLCFPRSPFRLLGKRAFITYTELLIKRHK
/KYENYLKYQPKQLVKHFEIEYU1FEDQGISMLDAEASFITNDLLGSALTKSFSGKKG
/KYENYLKYQPKQLVKHFEIEYU1FEDQGISMLDAEASFITNDLLGSALTKSFSGKKG
/HVSFKFSLDQQRSCPTCTDSLLNGDFTITYDVNRESPGNVQIVNFILESGDVSTWKEHLVQ
/ATPENLQEARTFVKSNEDKGMYNUNDGLLRGISMLNARESPGNVQIVNFLESGDVSTWKEHLVQ
/ATPENLQEARTFVKSNEDKGMYNUNDGLLRGISMLNYNFLENMALENHGFARRIYEDS
/ADLQLQGFYEEYANPLLTGVENEYFENALLDLTQNTYQHFYDGSIVAGRLVDEDM
/NSFKADVKGHGATNDLTFTEEYDMKENEXALQERDYIFONDEDERALADKPGEDAEATFV
/SPAMSYLTSYQPPQNFYYYDGDPHFILQIPEKDDALCFNIDERAGTVLALIQDAVTG
/LTVNGQITGBCRGSPDSKTRKTYFGKLGIRNAQMDFQUEYTEKITGTGTGRASTFSWL
/TTVNGQITGDKRGSPDSKTRKTYFGKLGIRNAQMDFQUEYTEKITGTGTGRASTFSWL
/TTVNGQITGBCRGSPDSKTRKTYFGKLGIRNAQMDFQUEYTEKITGTGTGRASTFSWL
/TTVNGQITGBCRGSPDSKTRKTYFGKLGIRNAQMDFQUEYTEKITGTGTGRASTFSWL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ğ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /cell_type="hepatocyte"
/tissue_type="liver"
/clone_Tib="lambda_gtll"
/dev_stage="adult"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       X14690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AQTHGLLGQFFQPFDFKVSDIRPGSDPTKPDATLVVKNHQLIVTRGSQKDYRKDASIG
TKVVCWFVHNNGEGLIDGVHTDYIVPNLF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DTVTVTQDGLSMMINRKNMVVSFGDGVTFVVVLHQVWKKHPVHRDFLGFYVVDSHRMS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                location/Qualifiers
                                                                                                                                                                                                                                                                 -CTGAATTTCATCCTGTTCAGTGGAGATGTG-----TCCACATGGAAA 1007
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone="5"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                map="p211-p212"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      chromosome="3p"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     organism="Homo sapiens"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 isolate="2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       11
92.00
96.72%
24.82%
8.22%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            .2807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       567 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2807
34
30
45
28
                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AAA
                                                                                     1124
  1184
                                                                                                                                                                                                                    89
                                                                                                                                                                                                                                                                                                          75
                                                                                                                                                                                                                                                                                                                                                       965
                                                                                                                                                                                                                                                                                                                                                                                                                                        905
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 35
```

```
JOURNAL FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 15
AR204653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                        S
                                                  밁
                                                                            á
                                                                                                        밁
                                                                                                                                Ś
                                                                                                                                                               밁
                                                                                                                                                                                       Ś
                                                                                                                                                                                                                    멼
                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x AR204653 (1-3043)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Locus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                                                                                               1157
                                                                                                                                                                                                                                                                        1049
                                                                                                                                                                                                                                                                                                                            1022
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
1328
                                                                                                                                                                                                                     1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          122
                                                                                                                                   116
                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                  968
                                                                                                                                                                                                                                                                                                                                                                                                                                       941
                                                                                                                                                                                                                                               81
                                                                                                                                                                                                                                                                                                   77
                                                                                                                                                                                                                                                                                                                                                       57
                                                                                                                                                                                                                                                                                                                                                                                                            37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                       GTTCTTGATAAGTCTGGAAGCATGGGG---
                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGACTGATGGGGATGCCAATGTTGGTGAGAGCAGACCCGAAAAAATCCAA 1235
                                                                                                        CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                       GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scores:
GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1387
                                                                        ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                             Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                    GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1156
                                                                                                                                                                                                                                                                        ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1108
                                                                                                                                                                                                                                                                                                   CysVal------AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                      GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                          SerPheAla-----
                                                                                                                                                               GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1216
                                                    TGTATTGATGAAGTGAAA-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Hayden, M., Klass, M.R., Roberts-Rapp, L., Ru
Stroupe, S.D.
Reagents and methods useful for detecting
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 3043 Billing-Medel, P.A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 16
AR204653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gastrointestinal tract
Patent: US 6368792-A 16 09-APR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AR204653.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AR204653
                                                                                                                                                                                                                                                                                                                                                                                  ---GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1023
                                                                                                                                                                                      -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              рJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1. .3043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           organism="unknown" 575 c 608 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              from
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13.7
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                to 3043)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GI:21502034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cohen, M., Colpitts, T.L.,
                                                                                                                                                                                                                                                                                                                            -----ACTGTTGAAAATGGATCCTGGGTGGGG 1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3043
US 63
                                                     -CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6368792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Russell, J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       3043
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            diseases of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Friedman,
ell,J.C. a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    , P.N.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             20-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                               56
                                                     1327
                                                                                                                                                                                                                                                                                                                                                                                                                                         967
                             155
```

```
Ś
                                                                                                      밁
                                                                                                                            ð
                                                                                                                                                            밁
                                                                                                                                                                                 5
                                                                                                                                                                                                                                      ઇ
                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
ACCESSION
VERSION
KEYWORDS
 밁
                         ş
                                               밁
                                                                                                                                                                                                                용
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x AR204655 (1-3181)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AR204655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pocus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1448
                                                                                                                                                              1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             source
 1288
                                                                                                                                                                                                                                                                       1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1388
                                                                                                          1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NO.:
                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                         979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  156
                                                                                                                                                                                       81
                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                              57
                                                                                                                                                                                                                                                                                                                                                  37
                                                                                                                                                                                                                                                                                                                                                                                                          17
                                                                                                                                                                                                                                                                                                                                                                                              LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
 TGTATTGATGAAGTGAAA-----
                ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                Gln-----AlaAlaVallleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                      GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 122
                                                                                                                                ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                         GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------CTCTGGGA 1167
                                                                                                                                                                                                             ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAAGCAGT 1119
                                                                                                                                                                                                                                           Cysval-----
                                                                                                                                                                                                                                                                                     GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                              GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAAAT 1453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                   CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                        -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlySer 174
                                                                                                                                                                                                                                                                    -----ACTGTTGAAAATGGATCCTGGGTGGGG 1.059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
AR204655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Reagents and methods useful for detecting gastrointestinal tract Patent: US 6368792-A 18 09-APR-2002;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1 (bases 1 to 3181)
Billing-Medel,P.A., Cohen,M., Colpitts,T.L.,
Hayden,M., Klass,M.R., Roberts-Rapp,L., Russs
Stroupe,S.D
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unclassified.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AR204655.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AR204655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
|||:::|||:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /organism="unknown"
593 c 631 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                            14.5
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:21502037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               from patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3181 bp
US 6368792.
CAAAGTGGGGCCATTGTTCATTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   877
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Russell,J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               diseases of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                            3181
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Friedman, P.N., ell, J.C. and
                                                                                                                                                                                                                                         -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PAT 20-JUN-2002
                                                  1.287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1447
                                                                                                                                                                                                                                                                                                                                                                              978
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 17
AX322747
밁
                      S
                                                     문
                                                                                S
                                                                                                             밁
                                                                                                                                   δ
                                                                                                                                                                      밁
                                                                                                                                                                                             S
                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x AX322747 (1-3195)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
1229
                                                                                                                                                                                                                              1034
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1459
                                                                                                                                                                                                                                                                                                                                             953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       156
                                                                                                                                                                                                                                                                                                                                                                        17
                                                                                                                                                                                                  77
                                                                                                                                                                                                                                                         57
                                                     GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1226
                                                                                                             GATGAAAGAACACACTCATGGCAGGATTACCTACATAT-----CCTCTGGGA
                                                                                                                                     CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                      ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1120
                                                                                                                                                                                                  CysVal----
                                                                                                                                                                                                                                                                                                                                             GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                      LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAAAT 1464
CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1286
                            Gln-----
                                                                                                                                                                                                                             ----ACTGTTGAAAATGGATCCTGGGTGGGG 1060
                                                                                                                                                                                                                                                        GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                              GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAGAĠĊTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                    -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AX322747
Sequence
AX322747
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Macina, R.A., Chen, S.Y., Pluta, J., Method of diagnosing, monitoring,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Patent: WO 0192528-A 22 06-DEC-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                colon cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    human.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AX322747.1 GI:18093738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Location/Qualifiers
1. .3195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /organism="Homo sapiens"
/db_xref="taxon:9606"
596 c 632 g 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Inc.
                   AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                       ---AspGlyIleLysMetHisGluThrVallleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                 14.5
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3195 bp
from Patent W00192528.
                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               staging,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sun, Y. and Recipon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ф
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                 3195
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             imaging
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                  ----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PAT 07-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               treating
                                                                                                                                                                                                                                                                                    1033
                                                                                                              1168
                                                                                                                                                                                                                                                                                                                 56
                                                                                                                                                                                                                                                                                                                                             979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              155
```

```
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 18
AF127035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pocas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAAAT 1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGAAGAĞCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCCATTGTTCATTTATTGCTTTG 1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3204 bp mRNA linear PRI 11-AUG-1999
Homo sapiens calcium-activated chloride channel protein 2 (CaCC2)
mRNA, complete cds.
AF127035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (09-FEB-1999) Groupe Genomique, SYNTHELABO, 10 Rue des Carrieres, Rueil-Malmaison 92500, France Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mammalia; Butheria; Primates; Catarrhini; Hominidae; Homo.

1 (bases 1 to 3204)

Agnel,M., Vermat,T. and Culouscou,J.M.

Identification of three novel members of the calcium-dependent of chloride channel (CaCC) family predominantly expressed in the digestive tract and trachea

FEBS Lett. 455 (3), 295-301 (1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (bases 1 to 3204)
Agnel, M. and Culouscou, J.-M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AF127035.1 GI:5726288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0437792
LTATEL BATTOLE WIGHERGEVELLVLCLLHQSNTSFIKLNNNGFEDIVIVIDESVED
DEKIIEQIEDMVTTASTYLFBATEKRFFFKNVSILIPENKKKENPQYKRFKHENHKHAD
VIVAPPTLPGRDBEYTKQFTECGEKGEVIHFTPDLLGKKQNEVGPPGKLFVHEWAHL
RWGVFDEYNEDQFFYRAKSKKIBATRCSAGISGRNRVYKCQGGSCLSRACRIDSTYKL
YGKDCQFFEDKVQTEKASIMFMQSIDSVVEFCNEKTHAQEAFSLONIKCNFRSTWEVI
SNSEDFKNTIPMVTPPPPPVFSLLKIRQRIVCLVLDKSGSMGKDRLNRMQAAKHFL
LQTVENGSWVCHVHFDSTATIVNKLIQTKSSDERNTLMAGLFTYLGGTSICSGIKYA
FQVIGELHSQLDGSEVLLLTDGEDNTASSCIDEVKQSGAIVHFIALGGTSICSGIKYA
FQVIGELHSQLDGSEVLLLTDGEDNTASSCIDEVKQSGAIVHFIALGGTSVEFVI
IDSTVCKDTFFLITMNSLFPSISIMDESGTIMENFTVDATSKMATUSIPGTAKVGTWA
YNLQAKANPETLTITWTSRAANSSVPFITVNAKMNEDVSFFSFMIVYARILQGVVPV
LGANVTAFIESQNGHTEVLELLDNGAGADSFKNDGVYSRYFTAYTENGRYSLKVRAHG
GANTARLKLRPPLNRAAYIFGWVVNGEIEANPFRPEIDEDTGTTLEDFSRTASGGAFV
VSQVBSLFLDQYPBSQITDLDATVHEDKILTWTAFGDNATHIFIAIKSIDKSNILSKSIL
DLRDSFDDALQVWTTDLSFKADNSKESFAFKPENISENNTHIFIAIKSIDKSNILTSK
VSNIAQVTLFIPQANPDDIDFFFFFFFFFFFFFKENSGVNISTLVLSVIGSVVIVNFILS
TTI"
                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/product="calcium-activated chloride channel protein /protein id="AAD48398.1"
/db_xref="GI:5726289"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="CaCC2"
/note="bovine epithelial chloride channel homolog"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      tissue_type="colon"
L. .3204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      organism="Homo sapiens"/db_xref="taxon:9606"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene="CaCC2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----- 155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ŋ
```

			····																							
REFERENCE AUTHORS	ACCESSION VERSION KEYWORDS SOURCE ORGANISM	RESULT 19 AK000072 LOCUS DEFINITION	1463		Qу 156 рь 1403	1343	Qу 153 (	Db 1292	Qy 133 I	1232	Оу 116 (	1172	Qy 101 -	1124	Оу 81 (	1064	Qy 77 (	10	Qy 57 G	Db 983 -	Qу 37 G	Db 956 G	Qy 17 I	US-10-034-5	Alignment Sc pred. No.: Score: Percent Simi Best Local S Query Match: DB:	BASE COUNT ORIGIN
, Hikiji, Okitani, C., Tanaka	AKOUOU/2 AKOOOOT2.1 GI:7019922 Oligo capping; fis (full insert sequence). Homo sapiens colon cDNA to mRNA, clone_lib:COL clone:COL01613. Homo sapiens Eukaryota, Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.	AKO00072 3221 bp mRNA linear PRI 22-FEB-2000 Homo sapiens cDNA FLJ20065 fis, clone COL01613, highly similar to ECLC_BOVIN EPITHELIAL CHLORIDE CHANNEL PROTEIN.	::: GAAAT 14	GlySer 174	TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1462	T 14	SerPheAla 155	ACAAAGTGGGGCCATTGTTCATTTTATTGCTT	ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152 	ACTCGATGGATC	GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132	 TAAATATGO	AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115	::: ::	CysAlaValAsnThrIleLysSerAspieuGluIlePheGlyArgLeuThrProValGly 100	 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1123	CysValAlaGlu 80	ACTGTTGAAAATGGATCC	lyGlyLeuTyrThrPheAlaProTyrSerVal	GGTAAGGACCGCCTAAATCGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1036	luLeu	TTCTTGATAAGTC		500-2 (1-218) x AF127035 (1-3204)	Scores:       14.6       Length:       3204         milarity:       91.50       Matches:       46         Conservative:       26         Similarity:       22.77%       Mismatches:       55         h:       8.18%       Indels:       75         h:       9       Gaps:       8	1098 a 594 c 633 g 879 t

```
TITLE
JOURNAL
REFERENCE
AUTHORS
                                   र्
                                                                            밁
                                                                                                                ঠ
                                                                                                                                                              밁
                                                                                                                                                                                            ð
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2 (1-218) x AK000072 (1-3221)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TITLE
JOURNAL
                                                                                                                                                                                                                                               1138
                                                                                                                                                                                                                                                                                                                               1078
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
0
:.
                                                                                                                                                            1186 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 124
                                                                                                                                                                                                                                                                                                                                                                                                               1051
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            970
                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                     77
                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
    TGTATTGATGAAGTGAAA--
                                   ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                       Gln------AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                        GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1185
                                                                                                                                                                                                                                                                                CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                         ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1137
                                                                                                                                                                                                                                                                                                                                                                     CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                               GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG 1050
                                                                                                                                                                                                                                                                                                                                                                                                         -----ACTGTTGAAAATGGATCCTGGGTGGGG 1077
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (15-FEB-2000) Sumio Sugano, Institute of Medical Science, University of Tokyo, Deptment of Virology; Shirokane-dai, 4-6-1, Minato-ku, Tokyo 108-8639, Japan (E-mail:cdnal@ims.u-tokyo.ac.jp, Tel:81-3-5449-5286, Fax:81-3-5449-5416)

NEDO human cDNA sequencing project supported by Ministry of International Trade and Industry of Japan; cDNA library sequencing: Research Association for Biotechnology; cDNA library construction, 5'- & 3'-end one pass sequencing: Departent of Virology and Human Genome Center, Institute of Medical Science,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2 (bases 1 to 3221)
Sugano,S., Suzuki,Y., Ota,T., Obayashi,M., Nishi,T., Isogai,T.,
Shibahara,T., Tanaka,T. and Nakamura,Y.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               University of Tokyo (partly supported by Science and Technology Agency).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NEDO human cDNA sequencing project
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CHANNEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="colon"
/clone_lib="COL"
/note="cloning vector pME18SFL3"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /note="highly similar to ECLC_BOVIN EPITHELIAL CHLORIDE CHANNEL PROTEIN"
600 c 634 g 882 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Homo sapiens"
/db_xref="taxon:9606"
/clone="COL01613"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14.7
91.50
35.64%
22.77%
8.18%
·CAAAGTGGGGCCATTGTTCATTTATTGCTTTG 1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Conservative:
                                                                                                                                                                                                                                                                                                                                                                   -----AlaGlu 30
                                                                            1305
```

```
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 20
AX092338
S
                             B
                                                        S
                                                                                       밁
                                                                                                                  δ
                                                                                                                                               멼
                                                                                                                                                                            S
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                      片
                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x AX092338 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                   1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Мо.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1417
                                                                                                                                                                                                                                                                         979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          173
                                                                                                                     81
                                                                                                                                                                                77
                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                            17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                   ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                CysVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAAAT 1482
                             GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                       GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                  CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                        ----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTTGGGGCTCTTACATCA 1476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerPheAla-----
                                                                                                                                                                                                                                       GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                    GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AX092338
Sequence
AX092338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1 (bases 1 to 3265)
Eaton,D.L., Filvaroff,E., Gerritsen,M.E., Godowski,P.J., Grimaldi,C.J., Gurney,A.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Patent: WO 0116318-A 69 08-MAR-2001; Genentech, Inc. (US)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Secreted and transmembrane polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    the same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Wood, W. J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AX092338.1 GI:13444483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       numan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1159
                                                                                                                                                                                                              -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              α
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /organism="Homo sapiens"
/db_xref="taxon:9606"
596 c 632 g 87
-AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Location/Qualifiers
                                                         ---AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                         14.9
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    from Patent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3265 bp
WO0116318.
                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  and nucleic acids encoding
                                                                                                                                                                                                                                                                                                                                                                                                                        3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Goddard, A.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Watanabe, C.K. and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                ---AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAT 21-MAR-2001
                                                           115
                                                                                       1167
                                                                                                                                                                                                                                                                      1032
                                                                                                                                                                                90
                                                                                                                                                                                                                                         76
                                                                                                                                                                                                                                                                                                    56
                                                                                                                                                                                                                                                                                                                                   978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155
```

Qy 81 CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
Qy 77 CysValAlaGlu 80
Qy 57 GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76 :::          Db 1033
Qy 37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
Qy 17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36 ::::::
US-10-034-500-2 (1-218) x AX376190 (1-3265)
Alignment Scores:  Pred. No.:  91.50  Percent Similarity:  14.9  Best Local Similarity:  22.77\$  Query Match:  6  Parcent Similarity:  22.77\$  Query Match:  6  Parcent Similarity:  32.65  Parcent Similarity:  32.64\$  Conservative:  26  Mismatches:  55  Indels:  75  Query Match:  6  Gaps:  8
taxon:9606" 632 g
, Inc. (US) Location/Qualifiers 13265 /organism="Homo sapi
Secreted and transmembrane polyp
L., Pan,J.
URCE ORGANISM
40 -
₿:
Qy 173 GlySer 174
Db 1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1458
alleIleAspGlnIleValAlaLeuAsnS
Db 1339 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCCAAGATAACAGGAGGAAGTCATTTT 1398
Oy 153 SerPheAla 155
Qy 133 ProValGluGluValLysSerILeTyrGlnThrAsnProAsnValCysPheH1sValVal 152
:::    ::::

```
ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 22
AX403491
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                        BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                             Ś
                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SOURCE
S
                               밁
                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                           US-10-034-500-2 (1-218) x AX403491 (1-3265)
                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                    JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1228
                                                                                                                                                                                                                                                                                                                                                                                       source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1288 TGTATTGATĠAĀĠTĠĀĀĀ------ĆĀĀĀGTGGGGCCATTĠTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   153
                               979 -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG
 57
                                                              37
                                                                                                                            17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProValGluValLysSerIleTyrClnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerPheAla----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                             GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                               GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ashkenazi,A.J., Baker,K.P., Botstein,D., Desnoyers,L., Eaton,D., Ferrara,N., Gerber,H., Gerritsen,M., Goddard,A., Godowski,P., Grimaldi,C.J., Gurney,A.L., Kljavin,I., Napier,M.A., Pan,J., Paoni,N.F., Roy,M., Stewart,T.A., Tumas,D., Watanabe,C.K., Williams,P., Wood,W.I. and Zhang,Z.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Homo sapiens
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3265 bp
Sequence 378 from Patent WO0073454.
AX403491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AX403491.1 GI:21436981
                                                                                                                                                                                                                                                                                                                                                                                                                     Genentech Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent: WO 0073454-A 378 07-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                    the same
                                                                                                                                                                                                                                                                                                                                         1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                         Ø
                                                                                                                                                                                                                                                                                                                                                                                                  Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                     14.9
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                         878 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DNA
                                                                                                                                                                                              3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PAT 14-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155
                                                                                                   978
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                           JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 23
AF333967
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                 PEATURES
                                                                                                                                                                                                      AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                            ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1033
                                                                                                              Sas
                                                                                                                                                   Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        СувVа1-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                     Hodgson, P.D. and Michalak, T.I.
Direct Submission
Submitted (08-JAN-2001) Basic Medical Scier
of Newfoundland, 300 Prince Phillip Drive,
                                                                                                                                                                                                                                                                                Augmented hepatic interferon gamma expression and T cell influx characterize acute hepatitis progressing to recovery and residualifelong virus persistence in experimental adult woodchuck
                                                                                                                                                                                                                                                                                                                       1 (bases 1 to 712)
Hodgson, P.D. and Michalak, T.I.
                                                                                                                                                                                                                                                                                                                                                                                                                                              Marmota monax tumor necrosis
AF333967
                                                                                                                                                                                                                                                                       hepatitis virus infection
                                                                                                                                                                                                                                                                                                                                                               Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                           Marmota monax
                                                                                                                                                                                                                                                                                                                                                                                                          Marmota
                                                                                                                                                                                                                                                                                                                                                                                                                                   AF333967.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AF333967
                                                                                                                                                                                                                                                        Unpublished
                                                                                                                                                                                                                                             (bases 1 to 712)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
/codon_start=1
/product="tumor necrosis factor alpha"
/protein_id="AAK52718.1"
/protein_id="AAK52718.1"
/db_xref="GI:14029517"
/translation="MSTESMIRDVELABEALPKEAWGPQGSSRCLCLSLFSFLLVAGA
/translation="MSTESMIRDVELABEALPKEAWGPQGSSRCLCLSLFSFLLVAGA
TTLFCLLHFGVIGPQREEFLNNLFLSPQAQMLTLRSSSQNMNDKPVAHVVAKNEDKEQ
LVWLSRRANALLANGMELIDNQLVVPANGLYLVYSQVLFKGQGCPSYVLLTHTVSRFA
                                                                                                                                                              Location/Qualifiers
                                                                                                note="TNF"
                                                                                                                       organism="Marmota monax"
db_xref="taxon:9995"
                                                                                                                                                                                                                                                                                                                                                                                                                                   GI:14029516
                                                                                                                                                                                                                                                                                                                                                               Chordata; Craniata; Vertebrata; Euteleostomi; Rodentia; Sciurognathi; Sciuridae; Sciurinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp n
                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA linea
calpha mRNA,
                                                                                                                                                                                       ו Sciences,
Drive, St. J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                       John's, NF
                                                                                                                                                                                                                                                                                                                                                                                                                                                          complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ROD 13-MAY-2001
                                                                                                                                                                                     l University
NF A1B 3V6,
                                                                                                                                                                                                                                                                                             residual
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155
                                                        REFERENCE
AUTHORS
                                                                                                                                             ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                     RESULT 24
MMY14137
LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ક
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                    SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment
Pred. No.:
                                                                                                                      ORGANISM
                                          TITLE
                                                                                                                                                                                                                                                        424
                                                                                                                                                                                                                                                                                  194
                                                                                                                                                                                                                                                                                                            364
                                                                                                                                                                                                                                                                                                                                      184
                                                                                                                                                                                                                                                                                                                                                                304
                                                                                                                                                                                                                                                                                                                                                                                         166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           184
                                                                                                                                                                                                                                                                                                                                                                                                                     274
                                                                                                                                                                                                                                                                                                                                                                                                                                              146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         28
```

```
US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
JOURNAL MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GAGTTCCTGAATAACCTCCCTCTCAGCCCCCAGGCCCAGATGCTCACACTCAGATCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGGAGCTGGCCGAGGAG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr 55
                                                                                                                                                                                                                                                                                                          AAGGGCCAAGGCTCCTCCTACGTGCTCCTCACCACACTGTC
                                                                                                                                                                                                                                                                                                                                                                       GACAACCAGCTGGTGGTGCCTGCAAACGGGCTATACCTTGTCTACTCCCAGGTCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                         GlnAsnProAlaVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrVallleAsnGlnMetPro-----ProGlnAlaAlaVallleLeuLeuThrAspGly 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ACTACCCTCTTCTGCCTGCTGCACTTTGGAGTGATCGGC------CCCCAGAGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuThr-----ProValGlyAspGlyIleLysMetHisGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlnGlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsn
                                                                                                                                                                                                                                                                                                                                         AsnSerValPheCysGlnGluGlnIleLeuValThrGluGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGCTGGTGTGGCTAAGTCGTCGTGCCAATGCCCTCCTGGCCAATGGCATGGAGCTGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnIleValAlaLeuAsn-----SerGlySerValLeuValAspGlyLeuGlnLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----CATGTTGTAGCAAAAAATGAAGACAAGGAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCTCAAAACATGAATGACAAGCCTGTAGCC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                     MMY14137
Marmota monax mRNA f
Y14137
Y14137.1 GI:2463267
TNP-alpha gene; tum
                                                                                                                           Marmota monax
Eukaryota; Metazoa;
                                                                                                                                                           Marmota monax.
 98139533
                                and IL-6
                                           Molecular cloning
                                                                                                Marmota.
                Immunogenetics
                                                                Lohrengel,B.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----AGCCGGTGCCTGTGCCTCAGCCTCTTCTCCTTCCTTGCTGGCAGGAGCC 132
                                                                (bases 1 to 723)
hrengel,B., Lu,M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VSYQDKVNILSAIKSPCPKESLEGAEFKPWYEPIYLGGVFELQKGDRLSAEVNLPSYL
DFAESGQVYFGVIAL"
1 211 c 195 g 156 t
                                                                                                                                                                                             GI:2463266
                                                                                                             Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.62
91.00
37.44%
23.08%
8.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AF333967
                  47
                                                                                                                                                                            tumor
                                               ō,
                (4),
                                                                                                                                                                                                                             for
                                                                                                             Chordata;
Rodentia;
                                                                and
                                               the
                                                                                                                                                                            necrosis
                                                                                                                                                                                                                           723
                332-335 (1998)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (1-712)
                                                            Roggendorf, M
                                               woodchuck
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
                                                                                                                                                                                                                           bp mRN
                                                                                                          Craniata; Veri
Sciurognathi;
                                                                                                                                                                          factor alpha
                                                                                                                                                                                                                                                                                                                                                                                                     -----CysGlnGluPheVal
                                                                                                                                                                                                                           mRNA li
sis factor
                                             cytokines:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCACTCCCCAAGGAGGCATGG
                                                                                                          Vertebrata; Eu
thi; Sciuridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    - ĊĊĊĊĂĠĠĠĊŦĊĊ-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 712
45
28
52
70
                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                         208
                                                                                                                                                                                                                                                                                                            468
                                                                                                                                                                                                                           alpha
                                             TNF-alpha,
                                                                                                             Euteleostomi;
me; Sciurinae;
                                                                                                                                                                                                                                            g
                                                                                                                                                                                                                                            09-APR-1998
                                           IFN-gamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         303
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    18
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         REFERENCE
AUTHORS
TITLE
JOURNAL
                á
                                                                         Ś
                                                                                                           Ъ
                                                                                                                                                                   망
                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                В
                                                                                                                                      á
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
                 166
                                                                                                                                           126
                                                                                                                                                                         194
                                                                                                                                                                                                        108
                                                                                                                                                                                                                                     143
                                                                                                                                                                                                                                                                                                                                                                                        56
                                                                                                                                                                                                                                                                                                                                                                                                                       38
                                                                                                                                                                                                                                                                                                                                                                                                                                                    36
                                                                                                                                                                                                                                                                  96
                                                                                                                                                                                                                                                                                                92
                                                                                                                                                                                                                                                                                                                           76
                                                                                                                                                                                                                                                                                                                                                           77
                                                                                                                                                                                                                                                                                                                                                                                                                                     IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr
:::||||||||:::|||
GlnIleValAlaLeuAsn-----SerGlySerValLeuValAspGlyLeuGlnLeuLeu |||:::||| :::::|||:::::|||:::::|||::::
                                                                                                                                                                        GAGTTCCTGAATAACCTCCCTCTCAGCCCCCAGGCCCAGATGCTCACACTCAGATCATCT
                                                                                                                                                                                                                                                                LeuThr-----
                                                                                                                                                                                                                                                                                                                                                                                        GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn
                                                                            AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp
                                                                                                             TCTCAAAACATGAATGACAAGCCTGTAGCC---
                                                                                                                                         HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro 145
                                                                                                                                                                                                   ThrVallleAsnGlnMetPro-----ProGlnAlaAlaVallleLeuLeuThrAspGly 125
                                                                                                                                                                                                                                   ACTACGCTCTTCTGCCTGCACTTTGGAGTGATCGGC------CCCCAGAGGGAA 193
                                                                                                                                                                                                                                                                                                                           SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Direct Submission
Submitted (02-JUL-1997) B. Lohrengel, Institut fuer Virologie,
Universitaetsklinikum Essen, Hufelandstr. 55, D-45211 Essen, I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lohrengel, B.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9472070
                                                                                                                                                                                                                                                                                              -----AGCCGGTGCCTGTGCCTCAGCCTCTTCTCCTTGTGGCAGGAGCC 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (bases 1 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="TNF-alpha"
242. .709
/gene="TNF-alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mstesmirdvelaeealpkeawgpogssrciclsipspilvaga
ttlfcilhfcyigpokeefluniplyvpanglilyrsssonmnikpvahyvaknebkeo
Liwilsrranallangeelinniplyvpanglilyrsssonmnikpvahyvaknebkeo
vsyddkvnilsaikspcpkeslegaefkpwyepiylggvfelokgdrlsaevnlpsyl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DFAESGQVYFGVIAL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="unnamed"
215 c 196 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="tumor necrosis factor alpha"
/protein_id="CAA74569.1"
/db_xref="GG1:2463267"
/db_xref="SPTREMBL:035734"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'gene="TNF-alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gene="TNF-alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /tissue_type="PBMC"
l1. .712
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              organism="Marmota monax"
/db_xref="taxon:9995"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ocation/Qualifiers
                                                CATGTTGTAGCAAAAAATGAAGACAAGGAG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x MMY14137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.67
91.00
37.44%
23.08%
8.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (1-723)
                                                                                                                                                                                                                                                                ----ProValGlyAspGlyIleLysMetHisGlu 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                          -----CCCCAGGGCTCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                       -GCACTCCCCAAGGAGGCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  723
45
28
52
70
                                                                                                                                                                                                                                                                                                                              95
                                                                                                                                                                                                                                                                                                                                                                                        75
                                                                              165
                                                                                                                                                                                                                                                                                                                                                             91
                                                                                                                                                                                                                                                                                                                                                                                                                       76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FRG
```

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AF082491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACCESSION
Ś
                                 밁
                                                              Ş
                                                                                                                                                                                                                                                                     BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                   US-10-034-500-2 (1-218)
                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                       Score:
                                                                                                                                                      Query
                                                                                                                                                                                                                     Pred. No.:
                                                                                                                                                                                                                                   Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       194
                                                                                                                                                    Match:
                                  65
56 GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GACAACCAGCTGGTGCCTGCAAACGGACTATACCTTGTCTACTCCCAGGTCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGGGCCAAGGCTGCCCCTCCTACGTGCTCCTCACCCACACTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnAsnProAlaVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGCTGGTGTGGCTAAGTCGTCGTGCCAATGCCCTCCTGGCCAATGGCATCGAGCTGATA
                                                      IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr
:::|||||||:::|||
::::::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnSerValPheCysGlnGluGlnIleLeuValThrGluGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Submitted (06-AUG-1998) Virology, Fox Chase
Burholme Ave, Philadelphia, PA 19111, USA
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2 (bases 1 to 779)
Zhou, H., Hu, J. and
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Guo,J.T., Zhou,H., Liu,C., Aldrich,C., Sag
Barrasa,M.I., Mason,W.S. and Seeger,C.
Apoptosis and regeneration of hepatocytes
transient hepadnavirus infections
J. Virol. 74 (3), 1495-1505 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1 (bases 1 to 779)
Guo, J.T., Zhou, H., Liu, C.,
Barrasa, M.I., Mason, W.S. a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Eukaryota; Metazoa;
Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Marmota
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Marmota monax
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Marmota.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Marmota monax.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AF082491.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AF082491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   20094937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10627561
                                                                                                                                                                                                                                                                                         162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                monax
                                                                                                                                                                                                                                                                                                                      /translation="MSTESMIRDVELAEBALPKEAWGPGSSRC/UCLSLFSFILVAGA TTLFCLLHFGVIGPGREFLANDLLSAEBALPKEAWGPGGSSRC/UCLSLFSFILVAGA UTLFCSLGFGVFGCPSYVLTHTWSRFA LVMUSRFALALLANGMELTLNKGLVLPANGLLYLVSQVLFKGGGCCPSYVLTHTWSRFA VSYQDKVNILSAEVALLANGMELTDNKGLVPANGLYLVSQVLFKGGGCFSYVLTHTWSRFA VSYQDKVNILSAEVALLANGMELTDNKGGAEFKPWYEPIYLGGVFELQKGDRLSAEVANLPSYL VSYQDKVNILSAEVALLANGMENGAEFKPWYEPIYLGGVFELQKGDRLSAEVANLPSYL
                                                                                                                                                                                                                                                                                         DFAESGQVYFGVIAL"
240 c 205
                                                                                                                                                                                                                                                                                                                                                                                       /product="tumor necrosis factor alpha"
/protein_id="AAC32615.1"
/db_xref="GI:3450964"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /tissue_type="peripheral blood"
1. .779
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /db_xref="taxon:9995"
/cell_type="mononuclear"
                                                                                                                                                                                                                                                                                                                                                                                                                                                         'gene="TNF alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="TNF alpha"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             organism="Marmota monax"
                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:3450963
                                                                                                                                    2.92
91.00
37.44%
23.08%
8.13%
                                                                                                     x AF082491 (1-779)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     tumor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and Seeger, C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     necrosis
                                                                                                                                                                                                                                                                                       ω
                                                                                                                                                    Conservative: Mismatches: Indels:
                                                                                                                                                                                                       Length:
Matches:
                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   bp mRNA
factor alpha
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Craniata; Vertebrata; Euteleostomi; Sciurognathi; Sciuridae; Sciurinae;
                                                                                                                                                                                                                                                                                         172
                                    -GCACTCCCCAAGGAGGCATGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Saputelli, J., Whitaker, T.,
                                                                                                                                      779
45
28
52
70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --CysGlnGluPheVal 193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (TNF alpha) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  during
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Cancer Center,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ROD 21-JAN-2000
                                      103
```

```
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                           REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                    VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 26
AF012910
                                                                                                                                                                PEATURES
                                                                                                                                                                                                                                                                                                                                                                                                           SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                             LOCUS
DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
                                                                                                                                                                                                                                                         JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                             ORGANISM
                                                                                                                                                                                                       JOURNAL
                                                          Sg
                                                                                 gene
                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           184
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        311
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnSerValPheCysGlnGluGlnIleLeuValThrGluGluVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GACAACCAGCTGGTGCCTGCAAACGGGCTATACCTTGTCTACTCCCAGGTCCTCTTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlnAsnProAlaVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlnIleValAlaLeuAsn-----SerGlySerValLeuValAspGlyLeuGlnLeuLeu 183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuThr----------ProValGlyAspGlyIleLysMetHisGlu 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCTGGTGTGGCTAAGTCGTCGTGCCAATGCCCTCCTGGCCAATGGCATGGAGCTGATA 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TCTCAAAACATGAATGACAAGCCTGTAGCC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GAGTTCCTGAATAACCTCCCTCTCAGCCCCCAGGCCCAGATGCTCACACTCAGATCATCT 280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrValIleAsnGlnMetPro-----ProGlnAlaAlaValIleLeuLeuThrAspGly 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACTACGCTCTTCTGCCTGCTGCACTTTGGAGTGATCGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----CATGTTGTAGCAAAAAATGAAGACAAGGAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AGCCGGTGCCTGTGCCTCAGCCTCTTCTCCTTCCTGCTTGTGGCAGGAGCC 169
                                                                                                                                                                                                                                                                    Gene 242
20184748
                                                                                                                                                                                                                                                                                                                                                                                                                                           Marmota monax tumor necrosis
AF012910
                                                                                                                                                                      Submitted (08-JUL-1997) Microbiology, Pathology and Parasitclogy, College of Veterinary Medical Sciences, North Carolina State University, 4700 Hillsborough St., Raleigh, NC 27606, USA
                                                                                                                                                                                                                                                                                 Li,D.H., Havell,E.A., Brown,C.L. and Cullen,J.M. Woodchuck lymphotoxin-alpha, -beta and tumor necrosis structure, characterization and biological activity Gene 242 (1-2), 295-305 (2000)
                                                                                                                                                                                                                                                                                                                                                                                           Marmota monax
                                                                                                                                                                                                                    Direct Submission
                                                                                                                                                                                                                                                                                                                                                     Marmota.
                                                                                                                                                                                                                                                                                                                                                                 Mammalia; Eutheria;
                                                                                                                                                                                                                                                                                                                                                                            Eukaryota; Metazoa;
                                                                                                                                                                                                                                                                                                                                                                                                         Marmota monax
                                                                                                                                                                                                                                                                                                                                                                                                                                  AF012910.1
                                                                                                                                                                                                                               Li,D.H.
                                                                                                                                                                                                                                                            10721723
                                                                                                                                                                                                                                           (bases 1 to 1637)
                                                                                                                                                                                                                                                                                                                                    (bases 1 to 1637)
/codon_start=1
/product="tumor necrosis
/protein_id="AAF34863.1"
                                                                                                                                                                Location/Qualifiers
                                         'gene="TNF"
                                                           /gene="TNF"
177. .878
                                                                                                                     organism="Marmota monax"
db_xref="taxon:9995"
                                                                                               tissue
                                                                                                                                                                                                                                                                                                                                                                                                                                  GI:7001346
                                                                                 .ssue_type="peripheral blood"
                                                       .878
                                                                                                            _type="mononuclear cells"
                                                                                                                                                                                                                                                                                                                                                                Chordata;
Rodentia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          bp m
                                                                                                                                                                                                                                                                                                                                                              Craniata; Vertebrata; Euteleostomi; Sciurognathi; Sciuridae; Sciurinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----CysGlnGluPheVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                          mRNA linear (TNF) mRNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----CCCCAGAGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       . 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                           complete cds
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ROD 19-FEB-2000
                                                                                                                                                                                                                                                                                                           factor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   , 220
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           310
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           118
                                                                                                                                                                                                                                                                                                          genes
 VERSION
KEYWORDS
SOURCE
ORGANISM
                                                                                                                                     밁
                                                                                                                                                            S
                                                                                                                                                                                       밁
                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                       ACCESSION
                                                                  DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
                                                                                                                                   600
                                                                                                                                                               194
                                                                                                                                                                                        540
                                                                                                                                                                                                                                                                                               450
                                                                                                                                                                                                                  184
                                                                                                                                                                                                                                           480
                                                                                                                                                                                                                                                                    166
                                                                                                                                                                                                                                                                                                                         146
                                                                                                                                                                                                                                                                                                                                                   420
                                                                                                                                                                                                                                                                                                                                                                                                       360
                                                                                                                                                                                                                                                                                                                                                                                                                                 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  243
                                                                                                                                                                                                                                                                                                                                                                            126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36
```

밁 δ 밁 ð 밁 S 밁 δ 밁 S 밁 S 밁 ঠ 밁 S 밁

```
RESULT 27
AF250878/c
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2 (1-218) x AF012910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       polyA_signal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          204 GTGGÄGCTGGCCGAGGÄG-----
                                                                                                                                                                                                                 AsnSerValPheCysGlnGluGlnIleLeuValThrGluGluVal
                                                                                                                                                                                                                                                                                                                      CAGCTGGTGTGGCTAAGTCGTCGTGCCAATGCCCTCCTGGCCAATGGCATGGAGCTGATA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GAGTTCCTGAATAACCTCCCTCTCAGCCCCCAGGCCCAGATGCTCACACTCAGATCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scores:
                                                                                                                                                                                                                                                                                   GlnAsnProAlaVal-----
                                                                                                                                                                                                                                                                                                                                                      GlnIleValAlaLeuAsn-----SerGlySerValLeuValAspGlyLeuGlnLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                            AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCTCAAAACATGAATGACAAGCCTGTAGCC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrValIleAsnGlnMetPro-----ProGlnAlaAlaValIleLeuLeuThrAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACTACGCTCTTCTGCCTGCACTTTGGAGTGATCGGC-----CCCCAGAGGGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----AGCCGGTGCCTGTGCCTCAGCCTCTTCTCCTTCCTGCTTGTGGCAGGAGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn
                                                                                                                                                                              AAGGGCCAAGGCTGCCCTCCTACGTGCTCCTCACCCACACTGTC
                                                                                                                                                                                                                                                    GACAACCAGCTGGTGCCTGCAAACGGGCTATACCTTGTCTACTCCCAGGTCCTCTTC
AF250878
Salmonella typhi R
AF250878.1 GI:780
HTG.
Salmonella typhi.
Salmonella typhi
                                                                                                                                                                                                                                                                                                                                                                                            ------CATGTTGTAGCAAAAAATGAAGACAAGGAG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            389
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="AU rich | 1622. .1627 | /gene="TNF" | 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /translation="MSTESMIRDVELAEEALPKEAWGPQGSSRCLCLSLPSFLLVAGA
/translation="MSTESMIRDVELAEEALPKEAWGPQGSSRCLCLSLPSFLLVAGA
TLFCCLLFCVIGPQREEFLANLPLSPQAQMLTLRSSQNMNDLKVAHVVAKNEDKEQ
LVMLSRRANALLANGMELLINQLVVPBANGLYLVYSQVLFKGQGCPSYVLLTHTVSFSF
VSYQDKVNLLSAIKSPCPKESLEGAEFKPWYEPIYLGGVFELQKGDRLSAEVNLPSYL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DFAESGQVYFGVIAL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /gene="TNF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         db_xref="GI:7001347"
                                                                                180461
typhi R27 plasmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7.24
91.00
37.44%
23.08%
8.13%
                                                       GI:7800243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            387
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-1637)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 element"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                        bp DNA complete s
                                                                                                                                                                                                                                                                                  -----CysGlnGluPheVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -GCACTCCCCAAGGAGGCATGG
                                                                                          sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1637
45
28
52
70
                                                                                                        circular
                                                                                                                                                                                                                 208
                                                                                                          BCT
                                                                                                          16-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                             165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               107
                                                                                                                                                                                                                                                    599
                                                                                                                                                                                                                                                                                       193
                                                                                                                                                                                                                                                                                                                      539
                                                                                                                                                                                                                                                                                                                                                         183
                                                                                                                                                                                                                                                                                                                                                                                            479
                                                                                                                                                                                                                                                                                                                                                                                                                                                                449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      419
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            359
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ទ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    257
```

gene

SdC

```
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JOURNAL
MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BITIT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                     CDS
                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submitted (30-MAR-2000) Laboratory of Genetics, University of Wisconsin, 445 Henry Mall, Madison, WI 53706, USA R27, a large antibiotic resistance plasmid from Salmonella typhi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1 (bases 1 to 180461)
Sherburne, C.K., Lawley, T.D., Gilmour, M.W., Blattner, F.R.,
Burland, V., Grotbeck, E., Rose, D.J. and Taylor, D.E.
The complete DNA sequence and analysis of R27, a large IncHI
plasmid from Salmonella typhi that is temperature sensitive
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bacteria; P
Salmonella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Burland, V., Rose, D.J. and Mayhew, G.F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Nucleic Acids Res. 28 (10), 2177-2186 (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transfer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              10773089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 180461)
                                                                                                                                                                                                                                                                                                                                                                                                                                                      gap) to GENPEPT:
                                                                                                                                                       /translation="MKCKIRPTAFCSKOMDFFSIFDFEEEEKEIITIVESPLDYINDA IAAQQSIQSEDKHSGPELEPSVSEDVALPGNCPKLLKNQILHDISFAAETDYLFTLEE YSAELGGLVFDWAPEDVYQLYVVAMEESLENVHLVITKSLYSTDEFCNITVNPLLEA ETRWYMSKSFELLTCATHGIDA TEFSELKKSLYEYTHSYGGENABLARYHODKEVILH DCKEEMGWDIFFEQDYLLQENKLAMKWTDRDIMDVYSKVFKSTINLFEKLVVNNKLTL RDTFGRVIVNPFTERQFEMIESEVFEIVGTHLGYNVAAIRTQMATACRMTFH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /insertion_seq="IS10"
/note="antibiotic resistance plasmid"
complement (86560. 158891)
/organism="Salmonella typhi"
/db_xref="taxon:601"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /insertion seq="IS10"
/note="antiblotic resistance plasmid"
complement (81810. 83018)
/organism="Salmonella typhi"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="antibiotic resistance plasmid"
complement(51028. .52248)
/organism="Salmonella typhi"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /evidence=not_experimental
complement(join(179821. .180461,1. .346))
/gene="R0210"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Proteobacteria; gamma subdivision; Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /organism="Salmonella typhi"
/db_xref="taxon:601"
/plasmid="R27"
                                                             /evidence=not_experimental
                                                                                                                                     complement (407. .784)
                                                                                                                                                                                                                                                                                                         /protein_id="AAF70046.1"
/db_xref="GI:7800450"
                                                                                                                                                                                                                                                                                                                                                                                 /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="spans sequence ends;f202; 21.92 pct identical (1 gap) to 73 residues of an approx. 1664 aa protein surperT: gi|1296953, vitellogenin. [Oncorhynchus mykis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /insertion_seq="insA/B"
complement(join(179821. .180461,1. .346))
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /plasmid="R27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          db_xref="taxon:601"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /db_xref="taxon:601"
/plasmid="R27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            organism="Salmonella typhi"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /insertion_seq="IS30"
/note="antibiotic resistance plasmid"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       plasmid="R27"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ocation/Qualifiers
note="f126; 38.10 pct identical (0 gaps) to 42 residues
                                                                                                                                                                                                                                                                                                                                                             'product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                     codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="R0210"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    plasmid="R27"
                                                                                                                    'gene="R0001"
                      function="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .180461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              xref="taxon:601"
                                                                                                                                                                                                                                                                                                                                                                                                                                                           mykise]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
```

```
/evidence=not_experimental
/transl_table=11
/product="putative DNA helicase"
/product="putative DNA helicase"
/protein_id="nAr669842.1"
/protein_id="nAr669842.1"
/protein_id="nAr669842.1"
/db_xref="q1:7800246"
/translation="mGKPTDEQRVIIENANANNMVIAAPGSGKSFTMIEAVISILRQF
/translation="mGKPTDEQRVIIENANANNMVIAAPGSGKSFTMIEAVISILRQF
/translation="mGKPTDEQRVIIENANAPGFRFFIERUTPILISVRHTRQQIHLFNTYQAI
SSAQRSVIHRALKESGAPFRYPDAEFAIDAIGREMDTDIISVRHTRQQIHLFNTYQAI
SSAQRSVIHRALKESGAPFRYPDAEFAIDAIGREMDTDIISVRHTRQQITESILKVAGALIEKN
CQKDHVADLNALSRFVVGQMYSGKMQPLUITHLVVDEVQDTDSIQYAMISLHTRAGVN
TSIVEDDDQAIYSFRASGGVKIFQQFEKQFRPNIFYLMTCFRCREDILKVAGALIEKN
VYRYAKDLRSAKGGGGKVHFRSYVDMDEQIQGILNLINQDPIGMALIEGRNEEVLDQTA
SLIEQDVLRYGGKSFWDEKETSDVTHLMAFFRHSNDVRLMKRVLALFGENEEVLDQTA
SLIEQDVLRYGGKSFWDEKETSDVTHLMAFFRHSNDVRLMKRVLALFGENEEVLDQTA
SLIEQDVLRYGGKSFWDEKETSDVTHLMAFFRHSNDVRLMKRVLALFGENEEVLDQTA
SLIEGDFULRYGGKSFWDEKETSDVTHLMAFFRHSNDVRLMKRVLALFGENEEVLDQTA
SLIEGDFULRYGGKSFWDEKETSDVTHLMAFFRHSNDVRLMKRVLALFGENEEVLDQTA
SLIEGDFULRYGGKSFWDEKETSDVTHLMAFFRHSNDVRLMKRVLALFGENEEVLDQTA
SLIEGDFULRYGGKSFWDEKETSDVTHLMAFFRHSNDVRLMKRVLALFGENEEVLDQTA
SLIEGDFULRYGGKSFWDEKETSDVTHMYGGTTRAEQQLHVNWYGGTTAABGCQLHVNWYGGTTAABGCQLHVNWYGGTTAABGCQLHVNWYGGTTAABGCAETABALIKMAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="f292; 24.63 pct identical (1 gap) to 134 residues of an approx. 712 as protein GENPEPT: gi 3608154; unknow
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="R0002"
/evidence=not_experimental
complement(843...1718)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /evidence=not_experimen complement(2116. .3900) /gene="trhI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mSYLEYVNEVKVSGIVISAMEKEMTSGNVGLLIKLKNRMKTEIN
GEITEREFSIQIKVSPEMYSGCFTGINQGDELMVSGYLVVDTITLEGREHPLDYMRVV
ATSKLAHIPKPPKGFGQSSFRQI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of an approx. 464 aa protein GENPEPT: vitellogenin. [Oncorhynchus mykiss]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="f595; 28.29 pct identical (52 gaps) to 555 residues of an approx. 728 aa protein GENPEPT: gi|2625021; DNA helicase II. [Serratia marcescens]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IVIMNEDGPTIIELNSLKSVSMLAQKLSAFSTYYHVEMQQILVNPIDFEKAYTLLKEA
PAIPMFKTLADLDKFLNEEFEKYGLNTFLDVDNLDYSLAKSRELKNDQLVAMVSEIIE
KREKLALRNRFNEVTKAHYETVDAMYAAVRPLMKELGFPDELMLHTFSELSVFDSKGW
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               complement (843. .1718)
                                                                                                                                                                                     /function="unknown"
/functe="0291; 25.71 pct identical (3 gaps) to 105
/note="0291; 25.71 pct identical (3 gaps) to 105
of an approx. 1792 aa protein GENPEPT: g1|262180
magnesium chelatase subunit [Methanobacterium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (2116. .3900)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical protein"
/protein_id="AAF69841.1"
/db_xref="GI:7800245"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /transl_table=11
/product="orf; hypothetical protein"
/protein id="AAF69840.1"
/db_xref="GI:7800244"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DPSFFLSECAEDKLKEAAKSRTESPLTE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /function="'putative DNA - replication,
restriction/modification'"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     VIAMMTEMFIVNKFI"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DYAIKSKIEFLTKREEQCLDYQMKADKRQATVDELLAQINNAKTVKAPRSFGQLFGFS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /evidence=not_experimental
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              translation="MSKSKARSKALLIAFADLIPDMDKVVNKKLLDSLNVYSGHDNDL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="R0002"
/evidence=not_experimental
/transl_table=11
/product="orf; hypothetical protein"
                                                                                                                                                         thermoautotrophicum]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="R0004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="R0003"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               codon_start=1
                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                               'gene="R0004"
                                                                                                                                                                                                                                                                                                                                                                                                                  'evidence=not_experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      [Arabidopsis thaliana]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           experimental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gi|1418563;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gi | 3608154; unknown
                                                                                                                                                                                                                                    gi 2621801;
```

gene

CDS

gene

CDS

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x AF250878 (1-180461)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
         175460
                                                                                                                                                                                                                                                                                                                                                    175610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SGS
                                                                                                                                                                           59
                                                                                                                                                                                                                                                                                           39
                                                                                                                                                                                                                                                                                                                                                                                                              19
                                                            77
                                                                                                                                                                     LeuTyrThrPheAla-----ProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                               GCATTAACTCTGGCAATTGAA------GCTATTTCAAAAATGCATGTTGCTAATGTG 175500
                                                                                                                                                                                                                                                                   AlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGly 58
                                                                                                                                                                                                                                                                                                                                                 GATATTTCAGGTTCAATGAGTCTGGAACACCGTTATATCCATGCAATTAAGACTGACCTT 175551
                                                                                                                                                                                                                                                                                                                                                                                      AspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeu 38
                                                      CysValAlaGluCysAlaValAsnThrIle---LysSerAspLeuGluIlePheGlyArg 95
                                                                                                               ATTTATCCGTTTGTAGACAAAGATTTTGAAGTTATC-----
ACGTTTGATGAAAACGCGGAAGAGAAACTTTCAAAATTCTCACTTGGCTGCAAGGGCAAT 175401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FENMKLEDKHIQEPAGCFDAVQTĒNSFCRFDRĒVNMDVGTKRLÞESVLKMATFLYKGD
TGYLTMKTNLEGYFCDPLAKEKLCSYDAKGNIMKDPTGKDLCYNYDDIKNMPDACSTY
KODAKCYLDNQYCAGEMFDEGTNTCYMYEQKYTCDRGKDVRZEVSQYTNSCVGNLFCS
GGTCETGPKEENKDFGKVAAYSNMVQYMQEGKKCEDPNDPNGCSVFEGKAEMCGRSVD
FVNGLAKTDCCEKPQGAAGSLEAIMLAGSMIRNTNWTRVNAQLVNWTGGESGTVASMA
NSVGEWTASAGKTVGQMWNNVTSSITSVYENVAGNLGRTVGSSAAGESGQLAKETMSS
FGLGKLKQMANEKAYDLLÞDTVRDFVEKNVATTGGEIVFSAAVQNFMLALNVIGWIYT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  THYPDYKEFYCNSPKKDNFNSCTITRDFSVPVYISGGNGDMSMCGDNCVRVWFGRRDD
NYWNDGVYDNSLTLKFHPDAKLATAKIINAEWDDHMRVTLDGTQIFAHIDGAYRSSNY
PSPQGQWELKKSWKLDKVYDITEQVKTSVYQEQDREVTWASRVWVGGGGEGYFEVEMT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /function="plasmid functions; conjugal transfer" note="f1059; 32.94 pct identical (3 gaps) to 85 re of an approx. 712 aa protein GENPEPT: gi|3378368; pair stabilization protein. (Sphingomonas aromaticivorans)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DQLERINFNLANPNANRINATTSAQDI VEKYKNADSGENLSGKI SEKYVGKAESTNLINVG
KYGT PNSNES VMSNAVSDGKS I CKAVQLPSMSGGTI INSPYTEGAKLLSRDSSGVI IGI
SNNPNTTAGTKYTSTGELFSSECKHSDVQFNAGGRYGDENGFINDI KNRKSQLFEAQSY
DGVAYRTLVNANKENPASTI KPNDPMFNAGRNE I GNAVAGTGNMLQNCNTETSKQTI T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="mknkrevslusalvasaslugcagnaggspnsaghspthglywh
Anakosvaknayslagedusemeetugdegdadnelskilisgamgyvtgglsglsm
Slgslysssdaeyigungyvuevpnekklpynddesluragaayvynhtkesgumlen
Pskgsaalasckidravinkwstceltskeaddymethsmysegairafateiglin
Pskgsaalasckidravinkwstceltskeaddymethsmysegairgateiglin
Pskgsaylayveipekgnessnnesgiifersdspkftmpggaaasingktyylesge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCYNSMLSRVIMQQAYPQLGIDPVTSNCVGLSIGQIQKLDFDKIDLTEWINDAVQVGE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AYQVTKMLLEMLVACDQKEMEAS I HKNQKSCFTLDTNRCVKYLNLGFTKKCVKKATDM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /evidence=not_experimental
/trans1 table=11
/product= putative mating pair stabilization protein"
/protein id="AAF69844.1"
/db_xref="GI:7800248"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /complement(4982. .8158)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (4982.
/gene="trhN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CSYLPRPAICEVGSTYVDPITGKEIPKY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               VPDQYATFSESSITANLPFKNENYQLPSERTKDAMGGEENMIKARQENAQAIKEENVD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          YGQKGFPEKTLKSK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (8181.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /protein_id="AAF69843.1"
/db_xref="GI:7800247"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               translation="MKHRKIISSAIIASMIANTMSWAFYVSLINIALTPKIFAADAIF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene="trhN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="R0005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40.46%
25.43%
8.13%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.26e+03
91.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               .8158)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          180461
44
26
77
26
8
                                                                                                                  ---AAA 175461
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      85 residues
8368; mating
```

Score:

밁 Ś 밁 δ ₽ ş ઠ ક

```
JOURNAL
PUBMED
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STYPPHCM1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 175190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 175250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Snoor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               175280 AATGATGTTTTTTCAGTTGCTGAAAGTAAC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 175400 AATACCCCAACGGGTTCTGCATTAAATGCTGCTTTAGAGTTGCTTACTTGAAAGCCAGTTT 175341
                                                                                                                                                                                                                               gene
                                                                                                                                                                                SGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ser---ValLeuValAspGlyLeuGlnLeuLeuGlnAsn 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCATTGAAATCGCTGGTGTTGGTATTAAAACTGATGTGTTGATGGGTTTTAATGAGGGC 175191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaAspAspAlaGluGlyLysAlaIle---IleAspGlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GACAGGAAAATTGTTTTCCTTATTACTGATGGTTATCCGACTGAGTCGGCTTACACCATT 175281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuThrProValGlyAspGlyIleLysMetHis---GluThrValIleAsnGlnMetPro 114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCTTCGTAAATGTTGATGATATTTCTTTATTGCCGAAT 175152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPhe 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProVal 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Parkhill, J., Dougan, G., James, K.D., Thomson, N.R., Pickard, D., Wain, J., Churcher, C., Mungall, K.L., Bentley, S.D., Holden, M.T.G., Sebaihia, M., Baker, S., Basham, D., Brooke, K., Chillingworth, T., Connerton, P., Cronin, A., Davis, P., Davies, R.M., Dowd, L., White, N., Farrar, J., Feltwell, T., Hamlin, N., Haque, A., Hien, T.T., Holroyd, S., Jagels, K., Krogh, A., Larsen, T.S., Leather, S., Moule, S., O'Gaora, P., Parry, C., Quail, M., Rutherford, K., Simmonds, M., Skelton, J., Etevens, K., Whitehead, S. and Barrell, B.G. Complete genome sequence of a multiple drug resistant Salmonella enterica serovar Typhi CT18
Nature 413 (6858), 848-852 (2001)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          plasmid p
AL513383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Submitted (25-OCT-2001) Submitted on behalf of the Salmonalla sequencing team, Sanger Centre, Wellcome Trust Genome Campus, Hinxton, Cambridge CB10 ISA E-mail: parkhill@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Salmonella enterica subsp. enterica serovar Typhi
Salmonella enterica subsp. enterica serovar Typhi
Bacteria; Proteobacteria; gamma subdivision; Ente
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Salmonella enterica serovar Typhi (Salmonella typhi) strain
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Details of S. typhi sequencing at the Sanger Centre on the World Wide Web.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Notes:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Parkhill,J
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11677608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Salmonella.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AL513383.1
                                                                                                                                                                                                                                                                                                                                                                                                                                    (URL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (bases 1 to 218160)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 218160)
                                                                                                                                                                                                                                                                                                                                                                                                       http://www.sanger.ac.uk/Projects/S_typhi/).
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PHCM1.
/note="HCM1.01c, possible membrane protein, len: 185 unknown function, contains hydrophobic, possible membrane-spanning regions. Spans sequence end" /codon start=1 /transl_table=11
                                                                                                                                                                                                  /gene="HCM1.01c"
                                                                                                                                                                        complement (1. .528)
                                                                                                                                                                                                                                                    /db_xref="taxon:90370"
/plasmid="pHCM1"
                                                                                                                                                                                                                                                                                                                                                        'organism="Salmonella enterica subsp. enterica serovar
                                                                                                                           gene="HCM1.01c"
                                                                                                                                                                                                                                                                                                         strain="CT18"
                                                                                                                                                                                                                                                                                                                                                                                       .218160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:16505740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Enterobacteriaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BCT 26-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      available
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               175251
                                                                                                      aa;
```

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                   SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="possible RBS"
complement(1871. .2585)
/note="TS1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (1367. .1690)
/gene="HCM1.03c"
complement (1367. .1690)
/gene="HCM1.03c"
/note="HCM1.03c, hypothetical protein,
unknown function"
/note="HCM1.05c, insA, probable ISI transposase, len: 91
aa; highly similar to many from Enterobacteriaceae e.g.
SW:ISA1_ECOLI (EMBL:X52534), insA, Escherichia coli
insertion element IS1 protein InsA (91 aa), fasta scores;
E(): 0, 98.9% identity in 91 aa overlap. Contains PS00017
ATP/GTP-binding site motif A (P-loop). Contains probable
helix-turn-helix motif at aa 67-88"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="HCM1.04c, insB, possible IS1 transposase, len: 156 aa; highly similar to many from Enterobacteriaceae e.g. SW:ISB ECOLI (EMBL:D10483), insB, Escherichia coli insertion element IS1 protein InsB (167 aa), fasta scores; [1]: 0, 91.6% identity in 167 aa overlap"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="HCM1.04c"
complement(1876. .2346)
/gene="insB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /gene="HCM1.02c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (1876. .2346)
/gene="insB"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MNKPLVSFAELSGNAINVARQSVIDMEMDATREKIGKARSLFHS
GIHRAVNGYPLIQSAANQLAVIKRLLGDTKYLDACITENLCMFSPEGYLYLFMQRRFI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="HCM1.02c, hypothetical protein, len: 103 unknown function"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="HCM1.02c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RRLTYTRLDEELEKIA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GMVVWFLIATGEFSRPWLYRLTPAKPVWLFDEVEDADLVLLSGNPFIKRWLHKEILKI
                                                                                                                                                                                                                                                         complement (2265. .2540)
/gene="insA"
                                                                                                                                                                                                                                                                                                                                                                                                                                           /translation="mpgnrphygrwpQhDfTSfKKLrpQSVTSRIQpgSDVIVCAKSR
QRWLfYAYDRLRKTVVAHVfGERTMATLGRLMSLLSPFDVVIWMTDGWpLyESRLKGK
LHVISKRYTQRIERHNUNLRQHLARLGRKSLSFSKSVELHDKVIGHYLNIKHYQ"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NEPVA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /product="hypothetical protein"
/protein_id="CAD09621.1"
/db_xref="GI:16505743"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="hypothetical protein"
/protein_id="CAD09620.1"
/db_xref="GI:16505742"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (536.
                                                                                                                                                                                                                                                                                                                                                                                                             complement (2265. .2540)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="putative IS1 transposase"
/protein_id="CAD09622.1"
/db_xref="GI:16505744"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="possible RBS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        translation="MNQTETGPSGFTETTVDEERIAIRVMIGDVVGRYRKQVPPDRVQ/
KATFEVNGGLLMALLLALLMLVCIIQRLATGDRLMSFTGEPDVRDIQFTLMLVIEFAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    note="13 bp inverted repeat flanking IS1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="MMYPDITGVKMKLSQLEVGMTVWSLSRTKMGNTTIKTVTLHSVV
|KEVHDNHVIASWNGNAPRRFGETAITGWKKEKPLLIRDRSGSARLATREEKARILDT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein_id="CAD09619.1"
/db_xref="GI:16505741"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product="putative membrane
                                                                                                                                                                                                                                                                                                                                         /note="HCM1.05c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .540)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 len:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sdo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                repeat_unit
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_statt=1
/trans1_table=11
/trans1_table=11
/product="putative magnesium and cobalt transport protein"
/protein_id="CAD09624.1"
/protein_id="CAD09624.1"
/db_xref="G1:16505746"
/trans1ation="wilsafoLENNRLTRLEVEESQPLVNAVWIDLVEPDDDERLRLQS
/trans1ation="wilsafoLENNRLTRLEVEESQPLVNAVWIDLVEPDDDERLRLQS
/trans1ation="wilsafoLENNRLTRLEVEESQPLVNAVWIDLVEPDDDERLRLQS
/trans1ation="wilsafoLENNRLTRLEVEESQLADEINTSDLEQUSR
/trans1ation="wilsafoLENNRLTLDLFETKIEQLADEINTSDLEQUSR
/trans1ation="wilsafoLENNRLTLDLFETKIEQLADEINTSDLEQUSR
/trans1ation="wilsafoLENNRLTRLEVERSATLPGQLEQUSR
/trans1ation="wilsafoLENNRLTRLEVERSATLPGGCLEQUSR
/trans1ation="wilsafoLENNRLTRLEVERSATLPGGCLEQUSR
/trans1ation="wilsafoLENNRLTRLEVERSATLPGGCLEQUSR
/trans1ation="wilsafoLENNRLTRLEVERSATLTRLEVERSATLPGGCLEQUSR
/trans1ation="wilsafoLENNRLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATLTRLEVERSATL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (2573...2585)
/note="13 bp inverted repeat flanking IS1"
complement (2694...3644)
/gene="corA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /mote="HCM1.07c, corA, probable magnesium and cobalt transport protein, len: 316 aa; similar to many e.g. SW:CORA_ECOLI (EMBL:L111042), corA, Escherichia coli magnesium and cobalt transport protein.(316 aa), fasta scores; E(): 0, 99.1% identity in 316 aa overlap. Contains pfam match to entry PF01544 CorA, CorA-like Mg2+transporter protein. Contains hydrophobic, possible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="possible translational frameshift site, similar to that determined experimentally (EMBL:X52534)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (2284. .2289)
/gene="insA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /codon_start=1
/transI_table=11
/product="putative IS1 transposase"
/protein_id="CAD09623.1"
/db_xref="GI:16505745"
/tabslation="MASVISCPSCSATDGVVRNGKSTAGHQRYLCSHCRKTWQLQFT
YTASQPGTHQKIIDMAMNGVGCRATARIMGVGLNTILRHLKNSGRSR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="HCM1.08"
/note="HCM1.08, hypothetical protein, len: 109 aa; similar note "HCM1.08, hypothetical protein (EMBL:L02122), to the N-terminal half of SW:YIGE_ECOLI (EMBL:L02122), yigE, Escherichia coli hypothetical protein (254 aa), fasta scores; E(): 0, 97.9% identity in 95 aa overlap"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              transporter protein, sc
complement (3653..3656)
/note="possible RBS"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (2472. .2495)
                                                                                                                                                                                                                       /gene="HCM1.10c"
complement(4363.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="HCM1.08"
4014. .4343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="possible RBS"
4014. .4343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (2697. .3584)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        membrane-spanning regions"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (2694.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /note="PS00017 ATP/GTP-binding site motif A (P-loop)"
                                                                                                                 function
                                                                                                                                                                                                                                                                                                   complement (4363.
                                                                                                                                                                                                                                                                                                                                                                       /trānslation="mahQLLIGKGMITLNLKRIFLALTLLPLFAVAADDCALSDPTLT
VQAYTVNPQTERVKMYWQKANGEAWGTLHALLADINSQGQVQMAMNGGILNLTVFDIK
                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="hypothetical protein"
/protein_id="CAD09625.1"
/db_xref="GI:16505747"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="HCM1.07c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene="insA"
/codon_start=1
/transT_table=11
/product="hypothetical protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           note="Pfam match to entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="corA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
                                                                                                                                                   note="HCM1.10c,
                                                                                                                                                   hypothetical protein, len: 68 aa; unknown
                                                                                                                                                                                                                                                                                               .4569)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .3644)
                                                                                                                                                                                                                               .4569)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         score
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PF01544 CorA, CorA-like Mg2+
432.90, E-value 2.8e-126"
```

Query Match: DB:

score:

No.:

```
US-10-034-500-2 (1-218) x STYPPHCM1 (1-218160)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACCTTCGTAAATGTTGATGATGATATTTCTTTATTGCCGAAT 91497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ser---ValLeuValAspGlyLeuGlnLeuLeuGlnAsn 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCATTGAAATCGCTGGTGTTGGTATTAAAACTGATGTGTTGATGGGTTTTAATGAGGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AATGATGTTTTTCAGTTGCTGAAAGTAAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACAGGAAAATTGTTTTCCTTATTACTGATGGTTATCCGACTGAGTCGGCTTACACCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProGlnAlaAlaVallleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProVal 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATACCCCAACGGGTTCTGCATTAAATGCTGCTTTAGAGTTGTTACTTGAAAGCCAGTTT 91308
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuThrProValGlyAspGlyIleLysMetHis---GluThrValIleAsnGlnMetPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACGTTTGATGAAAACGCGGAAGAGAAACTTTCAAAATTTCTCACTTGGCTGCAAGGGCAAT 91248
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CysValAlaGluCysAlaValAsnThrIle---LysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTTATCCGTTTGTAGACAAAGATTTTGAAGTTATC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuTyrThrPheAla-----ProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCATTAACTCTGGCAATTGAA------GCTATTTCAAAAATGCATGTTGCTAATGTG 91149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATATTTCAGGTTCAATGAGTCTGGAACACCGTTATATCCATGCAATTAAGACTGACCTT 91098
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIleGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AlaAspAspAlaGluGlyLysAlaIle---IleAspGlnIleValAlaLeuAspSerGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPhe 154
                                                                                              Gurnett, A.M., Liberator, P.A., Dulski, P.M., Salowe, S.P., Donald, R.G.K., Anderson, J.W., Wiltsie, J., Diaz, C.A., Harris, G. Chang, B., Darkin-Rattray, S.J., Nare, B., Crumley, T., Blum, P.S., Misura, A.S., Tamas, T., Sardana, M.K., Yuan, J., Biftu, T. and
                                                                                                                                                                                                Cryptosporidium parvum
Eukaryota; Alveolata; Apicomplexa; Coccidia; Eimeriida;
Cryptosporidiidae; Cryptosporidium.
Schmatz,D.M.

Purification and molecular characterization of cGMP-dependent protein kinase from Apicomplexan parasites. A novel chemotherapputic target

J. Biol. Chem. 277 (18), 15913-15922 (2002)
                                                                                                                                                                                                                                                                                                                                                                             Cryptosporidium parvum
                                                                                                                                                                                                                                                                                                                                                                                                       AF413571
                                                                                                                                                                                                                                                                           Cryptosporidium parvum.
                                                                                                                                                                                                                                                                                                                    AF413571.1 GI:20378273
                                                                                                                                                                                       (bases 1 to 2898)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /protein_id="CAD09626.1"
/dx.ref="GI:16505748"
/translation="MoHDDYTRTLRVQLYDASRFHDGATAEQAGELHTVAFSKPAIAD
DIQKIVDTTAEVLGKRYSVNVFSN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2.85e+03
91.00
40.46%
25.43%
8.13%
                                                                                                                                                                                                                                                                                                                                                                             cGMP-dependent protein kinase gene,
                                                                                                                                                                                                                                                                                                                                                                                                     2898 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                     DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             218160
44
26
77
26
8
                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                   INV 01-MAY-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ---AAA 91188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91368
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      114
                                                                                                                                                                                                                                                                                                                                                                             complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          91458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           91398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred.
                   밁
                                                    5
                                                                                                  밁
                                                                                                                                     á
                                                                                                                                                                                     밁
                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-034-500-2 (1-218) x AF413571 (1-2898)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BASE COUNT
ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              mRNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                           349
                                                                                                                                                                                                                                                                                                                                                         289
                                                                                                                                                                                                                                                                                                                                                                                                                                             229
                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                42
                                                                                                                                                                                                                                                                                                                                                                                                   38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      19
                                                        AspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIleGlu---
                   GAAGGAACAGCTTTTGGAGAATTAGCGCTTATTCACAATACTCCAAGAAGTGCTACCATT
                                                                                                                                                                                                                                                                                                              AlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThr
                                                                                                                                                                                                                                                                                                                                                         GATTATGAACAGAATATGGTAATATCTCACTTAAAGGATAGAGAAAAGACAGAAGAGGAC 288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Scores:
                                                                                                  GTCATTTCAACAGGAAGTTTTGGGGTTGAGATTAATGGTAACAGAGTCAACACAATGTCA
                                                                                                                                            AlaValAsnThrIleLysSerAspLeuGluIlePheGly---ArgLeuThrProValGly 100
                                                                                                                                                                                                                          PheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCys 81
                                                                                                                                                                                                                                                                        GAAATTGCTACTTTGGTCAGTTCCATGCATTATTACGAATATGAAGTGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21975164
11834729
                                                                                                                                                                                     -----GAAGTGGTAATTGAGCAAGGAGCA-----TCTGGATTTTACTTTTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     16.4
90.50
40.19%
19.62%
8.09%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     . 2898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . >2898
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               609 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels:
Gaps:
```

2898 41 43 43 82 43 7

----LeuAlaLysGlu 41

37

61 399

501

441

ঠ

96

91249

용 S 밁 ð 밁 S 밁 ঠ

91150

77

91099

39

59

91039

19

REFERENCE

AUTHORS

TITLE

JOURNAL

SOURCE ORGANISM

KEYWORDS VERSION ACCESSION DEFINITION 밁 ঠ 밁 ঠ 밁 S 문 á 밁

91459

174

91369

AF413571 RESULT 29

```
2 (bases 1 to 2898)
Donald,R.Gk. and Liberator,P.A.
Direct Submission
Submitted (22-AUG-2001) Human and Animal Infectious Disease
Research, Merck & Co., Inc., 126 East Lincoln Avenue, Rahway
                                                               FRDROKANIOSRIGGISKOMSNISNAGGGMEDDYEQNMVISHIKDREKTEEDIKTISK
ALAGRIVVGASLNESELATILVSSHYYEYEVGEVVIEQAMVISHIKDREKTEEDIKTISK
ALAGRIVVGASLNESELATILVSSHYYEYEVGEVVIEQAGGYFFFVISTGSFGVEING
NR VNTMSEGTTAFGELALIHNTPRSATILVIEKGGLUGGLGRSTFRDTLRLISSRNYEEN
RAFIESISIFGGITDKOKSLLSBALVREIFVKDQVIIREKGIGNTLYMIKSGIVGVFV
EDKYIRSLNEGDAFGERSLMFDEFRSATVIANATTECLTLNRGILTQVILGNIGQVLSK
NLIQQSLQNSPIFKQFTKNQMQILLDKISISTATECTLNRGILTQVILGNIGQVLSK
NLIQQSLQNSPIFKQFTKNQMQILLDKISISTNVIDKSLSDYINVLGRGDYGDDFVFHPKI
POVCKIEMKSETKIGVITSSMLJSECFGDENVDVGLEINRKRDAIKSCFVFQYVSEQQL
SLLVKSLRLVKFTSGEKIVVQCDKGTAFFILQSGEVAVRNNKFIRYLGKRDYFGERA
LYDBLRSATIEAAFDEVHLMTVDKBAFLKIVEFPMRRYLDERIKLGETFVQMSDLKI
LQTIGKGTFGVVYMVENIKSGNKYALKKISKSRILALNMQAHVKLERSILALNDHPFI
IKLVREIKESNILLDSGCYKLIDFGCAKKIARSSYTLAGTSHYMAFBVILGKSVNLSC
DAWAIGICLYEFLCGCLPFGNDAVDHLEIFKDILTSKLVFPHHLNDVDTVNIIKRLLC
RAFEKRAGGSATGYKEIKDNVFFKDFNFDRLLGRSYNLAGTSVARTENENIVE
REFERRAGGSATGYKEIKDNVFFKDFNFDRLLGRSYNLFRKENILGRSYNLSC
RVFBVRAGGGSATGYKEIKDNVFFKDFNFDRLLGRSYNLFRKENITAKTSONEENIS
                                             NITEVSQNEEALSPNTHNIKSKQKISFNASKNHSVSTRGNKMDEYDWDIEF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="cGMP-dependent
/protein_id="AAM20902.1"
/db_xref="GI:20378274"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      translation="MAFLTKLKTSKFSSGVKAAKETTYEELSKEENDEIEYPEEKMVV/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     organism="Cryptosporidium/db_xref="taxon:5807"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        product="cGMP-dependent
920 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    protein kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      parvum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            kinase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           z
```

```
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 30
AE013262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멵
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Snoo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE
                                                                                           gene
                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                         source
                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlnIleLeuValThrGluGluValVal 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGlnGlu 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysalaileileAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeu 180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGly 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIle 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGGTCATTATTAGAGAAAAAGAAATT 780
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTTGTTATTGAAAAAGGAGGACTTTGGGGACTTGGA-----AGATCCACT 606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGGGCATTCATTGAAAGCTTA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TTTAGAGATACA------CTGAGACTTATTTCATCTCGAAATTATGAGGAAAAT 654
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Martinez-Arias,R., Henne,A., Wiezer,A., Baeumer,S., Jacobi,C., Brueggemann,H., Lienard,T., Christmann,A., Boemecke,M., Steckel,Bhattacharyya,A., Lykidis,A., Overbeek,R., Klenk,H.-P., Gunsalus,R.P., Fritz,H.-J. and Gottschalk,G. The genome of Methanosarcina mazei: Evidence for lateral gene transfer between Bacteria and Archaea J. Mol. Microhiol
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Deppenmeier, U., Johann, A., Hartsch, T., Merkl, R., Schmitz, R.A., Martinez-Arias, R., Henne, A., Wiezer, A., Baeumer, S., Jacobi, C., Brueggemann, H., Lienard, T., Christmann, A., Boemecke, M., Steckel, S., Bhattacharyya, A., Lykidis, A., Overbeek, R., Klenk, H.-P., Bunsalus, R.P., Fritz, H.-J. and Gottschalk, G.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Submitted (23-AUG-2001) Goettingen Genomics Laboratory, Institute for Microbiology and Genetics, Grisebachstrasse 8, Goettingen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Methanosarcinaceae; Methanosarcina.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Methanosarcina mazei Goel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Methanosarcina mazei Goel.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AE013262.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   genome.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Methanosarcina mazei strain Goel,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AE013262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AE013262 AE008384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37077,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Archaea; Euryarchaeota; Methanococci; Methanosarcinales;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mol. Microbiol. Biotechnol. (2002) In press
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (bases 1 to 13296)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (bases 1 to 13296)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Germany
/gene="MM0364"
621. .965
/gene="MM0364"
/codon_start=1
                                                                                                                          /transT_table=11
/product="hypothetical protein"
/protein id="ApM30059.1"
/protein id="ApM30059.1"
/db_xref="GI:20904729"
/translation="MNVIEMKSSPEKDNPHNVSVRMLYDRENAQAVHIELKPGEALKK
/translation="MNVIEMKSSPEKDNPHNVSVRMLYDRENAQAVHIELKPGEALKK
HITPVDVFFYILEGKGVVEIGDEQEEVSRDMLIESPAKIPHRLLNPGDGIFRVLVVKA
                                                                                                                   PRQTESTRLL"
                                                                                                                                                                                                                                                                                                 /gene="MM0363"
                                                                                                                                                                                                                                                                                                                          245. .583
                                                                                                                                                                                                                                                                                                                                                                                db_xref="taxon:192952"
                                                                                                                                                                                                                                                                                                                                                                                                                 /strain="Goe1"
                                                                                                                                                                                                                                                                                                                                                /gene="MM0363"
                                                                                                                                                                                                                                                                                                                                                                                                                                       organism="Methanosarcina"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ocation/Qualifiers
                                                                                                                                                                                                                                                                         codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                            .13296
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ďď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----TCAATATTTTCAGGTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA linear
section 44 of 379
                                                                                                                                                                                                                                                                                                                                                                                                                                         mazei Goel"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BCT 17-MAY-2002 of the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ŝ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                            gene
                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene
                                                                                                                                                                                                                                                                                                                          Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /Godon_start=1
/trans1_table=11
/product="hypothetical protein"
/product="hypothetical protein"
/protein_id="AAM30065.1"
/protein_id="AAM30065.1"
/db_xref="GI:20904735"
/db_xref="GI:20904735"
/db_xref="GI:20904735"
/translation="MQNEQLLQEVGLNAYEAAAYLSLLKLGVSEASDIYRDSEVPYGK
/translation="MQNEQLLQEVGLNAYEAAAYLSLLKLGVSEASDIYRDSEVPYGK
/translation="MQNEQLLQEVGLNAYEAAAYLSLLKKGNEVERWAFLKSSVEEA
KSVLKAVPTQKRKDEFFWTTAITESEIKKFAVSIYSEVKKSVCVLPVFGISIVFYLL
PEITKAIDRGYRIKLMNISPRFWALASVLSHQDGEILECKKKGLVIRVQNSNGCFGIV
PEITKAIDRGYRIKLMNISPRFWALASVLSHQDGEILECKKKGLVERUFGISITGNAMAGEKI,DJCDELEEDKON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /trānslation="mteetkpikiavircdivseacpgvgcfkafnerksyfkeydek
aQmiafftcggcsgrrvyrllkalkkhnpdvvhlsscmlmedsyfrcpnidtirktiQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="hypothetical protein"
/protein_id="AAM30060.1"
/db_xref="GI:20904730"
                                                                                                                                                                                                                                                                                                                                                                       3592
                                                                                                                                                                                                                                                                                                                                                                                                             /producT="hypothetical protein"
/protein_id="AAM30064.1"
/brotef="GI:20904734"
/translation="MSEKLGFTPHILEILGCLDSDSLKKYNRCNKKLLSDGALPAKVK
/translation="MSEKLGFTPHILEILGCLDSDSLKKYNRCNKKLLSDGALPAKVK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3109. .3426
/gene="MM0368"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             EWDKKGSGIVENSRAYIQLLAQHIEKENNGLFPKADAYLDSGVQKELLDSFERVEDEE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="mrptddlreehravelmleildsvctniesgksveqehleklve
fmrifvdkchhtkeeahlfpemvkreipgtgelidsllkehnqareyvgriektvsgk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /codon_start=1
/trans1_table=11
/product='hypothetical_protein"
/protein_id="AAN30063.1"
/db_xref="GI:20904733"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (2339.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1714. .2082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KAERILFKGDVGADFIKYTCKMSKLIDDYKNVLYREGYLPDFKRQLFLTDT"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="mdnntsQdrgsnsgeeeiyegadpelQdlplpKtDsmlyLiIns
LNQNIANFNAYLKFKHYISEDILNTELLKRSMGIHRDFSALFLHTKEELVFIYPELLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="conserved protein"
/protein_id="AAM30061.1"
/db_xref="GI:20904731"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   DAGIKVVEGTHH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /transl_table=11
                                                                        DDSIVVLFQPHPTDRDRVLSVVKVRDSGLAKNLKEEFDLLWNAGEKLDLQEELEDKQN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3109. .3426
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (2339.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="MM0367"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="MM0366"
L714. .2082
    /gene="MM0370"
                                                                                                                                                                                                                                                                                                                        3592. .4434
                                                                                                                                                                                                                                                                                                                                             /gene="MM0369"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   [GAGKHEKFHLLLHELKDIYLKSA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'gene="MM0367"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                'gene="MM0366"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="MM0365"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene="MM0365"
                                                                                                                                                                                                                                                                                                   'gene="MM0369"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="MM0368"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                     .4434
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .2893)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .2893)
```

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="MM0371"
/codon_gtar/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4538. .5602
/gene="MM0370"
/EC_number="s /
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /transi_table=11
/product="hypothetical cytosolic protein"
/protein_id="AAM30069.1"
/protein_id="AAM30069.1"
/db_xref="GI:20904739"
/translation="MTRTKQKIETDFFKQLDRFTFSVRKRVSTVYAGNRPSTRSGHGIDTIGFREYDSSDALKDIDWKAYARTEKLYVRQFBEEKTLTTHILLDASKSMDYPEKGIDTIGFREYDSSDALKDIDWKAYARTEKLYVRQFBEEKTLTTHILLDASKSMDYPEKGISKEYSAMLAAGFAYMYTKYNDRFAISTFEESIRTYRFGRKWLAFRAIDRLSELELS
SKFEYSAMLAAGFAYMYTKYNDRFAISTFEESIRTYLSDFKERYTKKLDDHSARIKKTCMKVGABFYTFTTVLFLQGNSKLVDLETGEEIRTYISDNFKERYTRKLDDHSARIKKTCMKVGABFYTFTTTVLFLQGNSKLVDLETGEEIRTYISDNFKERYTRKLDDHSARIKKTCMKVGABFYTFTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /product="chorismate mutase"
/product="chorismate mutase"
/protesin_id="AAM30066.1"
/protesin_id="AAM30066.1"
/db_xref="GI:20904736"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRIITIP"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSKIIITIPPINLRMIIGVMGP
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSRSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSSAIGVLSkiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSSAIgvlsiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSSAIgvlsiiitippinlrmii"
/translation="MRLMHNSYEIFDFWRSSAigvlsiiitippinlrmii"
/translation="MRLMHNS"
/translation="MRLMHNS"
/tr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MNEINIDSGQAATTYQNAGRIFKSPFEEIGNVIVGQNRVVEEII ISILCEGHALVESNPGLGKTLMISTISKAMNLKESRIQCTPDLMPSDITGTNMIQETIL NKEERREEGEVPAN YLADEINRASDERTGSALLEAMGEKQUTVGNDTELDSRPFIL ATQNPIEMEGTYPLPEAQLDRFLLKILVDYPSFEEEMEIINRYTKSETPKITKGLDKSTLLDQKLTKQVPISEELKQRVLSIVSMYRKDKEHIEYGASPRASIGLILAAKARALI QGRNFVSKEDIDYMAYPVLRHRLILTFEAERSGMTPDQAIEEIIKKVK" 7956 8837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      5667
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="MM0372"
6813. .7787
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /translation="MDLEISIKKYESAVRVYRLLYTLFDFVTAFLTLYIIFSLINMED
IFSIFSVFEPYTGIKYDILGFKVVFETLGIILVELIIALIITALHYKRKEKKDAIKLI
EENFPYLKEHLATAYNMENDKENIIVKDLLGGVIIDLKEFLKFSSLLNKELVIIGIGAM
LTGSGSTYIAVTDYHTDITFTDFSEVIENLFFSGSNSDIVSVEENGGTSSDPQDNSEL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="MM0371"
5667. .6554
/tranal_table=11
/tranal_table=11
/product="conserved protein"
/protein_id="AAM30070.1"
/protein_id="AAM30070.1"
/db_xref="G1:20904740"
/translation="MPFQNPLALAALLSVIPLIIIYMLRPKPAVLSIPSLMFVLKLDR
/translation="MPFQNPLALAALLSVIPLIIIYMLRPKPAVLSIPSLMFVLKLDR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon start=1
/transI table=11
/product="MoxR-like ATPase"
/protein_id="AAM30068.1"
/db_xref="GI:20904738"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SKKSRSSTLKVLGSYPAFKK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GALYEPLGFFAKRGINLTKIESRPSKKELGDYYFYIDLEGNISDVLIKDALEDIKSKA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DTPVFNAFYNTIRRRRR"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LPEGYRSVIQSYFEQLAEE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FGEPAVIVVEGKDVDLKIPPGAGQGFTSQEEGEQNNESFIQSDIYNPEAIASQSYYEN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="conserved protein"
/protein_id="AAM30067.1"
/db_xref="GI:20904737"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /note="prephenate dehydratase"
/codon_start=1
/transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="MM0373"
/codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /gene="MM0373"
7956. .8837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               transl_table=11/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="MM0372"
                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="MM0374"
                                                                                                                                                                                                                                                                                                                                                                       gene="MM0374"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             _number="5.4.99.5"
_number="4.2.1.51"
```

QVDSRFEDAVRIADGYVSKKNSIILASNIPQLALEGGSASAAEDIFNKVKPGAGTADL SAAVTTGWLLLSEEGGRIIVISDFTNWVGDDPVASKNLAESYGLKVNFIKVGKPAENI GIINGWIEAVDGEYGYTGVVKNYRSESKTVEIMTGRGTSGNASKSFTLDVPAGGTNQF

```
JOURNAL
MEDLINE
PUBMED
REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment
Pred. No.:
Score:
                                                                                                                                                                                                                                                                                    SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                 VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                               LOCUS DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                       REFERENCE
                                                                                                                                                                                                                                                                                                                                                   ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                               AE003851
                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x AE013262 (1-13296)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                           TITLE
                                                                                                                                                                                                                       AUTHORS
   JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                             11341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11284
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11224
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                11062
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         10942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGTGTCAGTTATTTCCTTGAAGTTTTTTGTGGATGGA---AAGATTTCCCAGAGCAGGCAG 11340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGGCTTGGAAACCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCTCTTGTACAGCTTACCGGGGAAAAGACCACTCTCGGGGATGCTGTGACCCAGTATTCC 11061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                             TTTACTCAGGATACAAGGAATAATACCATCCCGATTAACCAGGCTTTTACCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAGTGGTTGTGGACAATCAGAACGAGTTTGAGATAGTTGTCCGCCAGGCTTCAGAACAG 11283
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LysAlaIleIleAsp------GlnIleValAlaLeuAsnSerGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TACCTTGTCCAGCCCGAGCTTGAAACAAATGACCTCAGTGTTGAGATACTCGGGGATAAG 11223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGly 160
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NACTCCGGAAAGGACCTGACCGAAGCCCCTGGAATTTGCAAAAGACACAAATACCACGGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AsnLeuGlyMetAsnProValGluGluValLys---------SerIle 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrVallleAsnGlnMetProProGlnAlaAlaVallleLeuLeuThrAspGlyHisAsn 127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGlu 107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTTTCCCTGAAGGGGCAGGTACTGACCTGTATGAATCCCTGACGGCAAAAACCCCGACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLys 87
                                                                                              Nature 4
20365717
2 (bases 8978 to 9169)
Marques, M. V. da Silva, A. M. and
Genetic organization of plasmid
Xylella fastidiosa
Plasmid 45 (3), 184-199 (2001)
                                                                                                                                         The genome sequence of the plant pathogen Xylella Xylella fastidiosa Consortium of the Organization
                                                                                                                                                                                   Silvestri,M.L., Siqueira,W.J., de Souza,A.A., de Souza,A.P., Terenzi,M.F., Truffi,D., Tsai,S.M., Tsuhako,M.H., Vallada,H., Sluys,M.A., Verjovski-Almeida,S., Vettore,A.L., Zago,M.A., Za
                                                                                                                                                                                                                                                                                    Xylella fastidiosa.
Xylella fastidiosa
                                                                                                                                                                                                                                                                                                                                                AE003851
Xylella fastidiosa
AE003851
                                                                                                           Sequencing Nature 406
                                                                                                                                                                         Meidanis, J. and Setubai, J.C.
                                                                                                                                                                                                                                                                   Bacteria;
                                                                                                                                                                                                                                                                                                                                   AE003851.1
                                                                              10910347
                                                                                                                                                                                                                                      (bases 1 to 51158)
                                                                                                                                                                                                                                                                  Proteobacteria; gamma subdivision;
                                                                                                           and Analysis
(6792), 151-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                105
90.50
41.77%
20.89%
8.09%
                                                                                                                                                                                                                                                                                                                                   GI:9112238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -SerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAla
||| ||||||||| :::::: ||||:::
                                                                                                                                                                                                                                                                                                                                                               plasmid
                                                                                                                                                                                                                                                                                                                                                                                 51158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                               58 bp
                                                                                                             (2000)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----ATAGTGCTTGTTACCGATGGGAACAGC 11103
                               l Gomes,S.
l pXF51 fr
                                                                                                                                                                                                                                                                                                                                                                DNA
complete
                                  from the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13296
33
33
65
65
27
                                                                                                                                                                                                                                                                                                                                                                               circular
                                                                                                                                                                                                                                                                      Xanthomonas
                                plant pathogen
                                                                                                                                          fastidiosa. The
                                                                                                                                                                                                                                                                                                                                                                               BCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            205
                                                                                                                                                                                                                                                                                                                                                                                                                                             11394
                                                                                                                                                                                                                                                                                                                                                                                 04-SEP-2001
                                                                                                                                                                                                                                                                     group;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          187
                                                                                                                                                                                          Zatz,M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    11163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11001
```

gene

```
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MEDLINE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene
                                                                                                                                                SdO
                                                                                                                                                                                                               gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Carrer, H., Colauto, N.B., Colombo, C., Costa, F.F., Costa, M.C.R., Costa, N.C.R., Cruber, A.J.S., Pranca, S.C., Franco, M.C., Ferreira, A.J.S., Franca, S.C., Franco, M.C., Ferreira, V.C.A., Ferro, J.A., Fraga, J.S., Franca, S.C., Franco, M.C., Frohme, M., Furlan, L.R., Garnier, M., Goldman, G.H., Goldman, M.H.S., Gomes, S.L., Gruber, A., Ho, P.L., Hoheisel, J.D., Junqueira, M.L., Kemper, E.J., Kitajima, J.P., Krieger, J.E., Kuramae, E.E., Laigret, F., Lambais, M.R., Leite, L.C.C., Lemos, E.G.M., Lemos, M.V.F., Lopes, S.A., Lopes, C.R., Machado, J.A., Machado, M.A., Madeira, A.M.B.N., Madeira, H.M., Marouse, M.V., Martins, E.A.L., Mardins, E.A.L., Martins, E.M.F., Matsukuma, A.Y., Menck, C.F.M., Miracca, E.C., Miyaki, C.Y., Monteiro-Vitcorello, C.B., Moon, D.H., Nagai, M.A., Nascimento, A.L.T.O., Netto, L.E.S., Nhani Jr., A., Nobrega, F.G., Nunes, L.R., Oliveira, M.A., de Oliveira, M.C., de Oliveira, R.C., Palmieri, D.A., Paris, A., Peixoto, B.R., Pereira, G.A.G., Pereira, Jr. H.A., Pesquero, J.B., Quaggio, R.B., Roberto, P.G., Rodrigues, V., de M. Rosa, A.J., de Rosa Jr., V.E., de Sa, R.G., Santelli, R.V., Jr., M.A., de Souza, A.P., Terenzi, M.F., Truffi, D., Tsai, S.M., Tsuhako, M.H., Vallada, H., Van Sluys, M.A., Verjovski-Almeida, S., Vettore, A.L., Zago, M.A., Zatz, M., Meidanis, J. and Setubal, J.C.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3 (bases 1 to 51158)
Simpson, A.J.G., Reinach, F.C., Arruda, P., Abreu, F.A., Acencio, M., Alves, L.M.C., Araya, J.E., Baia, G.S., Baptista, C.S., Alvarenga, R., Alves, L.M.C., Araya, J.E., Baia, G.S., Baptista, C.S., Barros, M.H., Bonaccorsi, E.D., Bordin, S., Bove, J.M., Briones, M.R.S., Bueno, M.R.P., Camargo, A.A., Camargo, L.E.A., Carraro, D.M., Carrer, H., Colauto, N.B., Colombo, C., Costa, M.F.F., Costa, M.C.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Submitted (02-JUN-2000) Organization for Nucleotide Sequencing and Analysis, Bioinformatics Lab - IC/Unicamp, C.P. 6176, Campinas, SP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         11407914
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           21301939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="XFa0002"
435. .1010
                                                                                                                                                                                                                                                                          /translation="MDFLALSQECAPWVATQTWAAIVKTESGFNPLLISVNGGAKLVR
QPENKAEAVSTARWLIEKGYNIDLGLGQVNSSNLVKVGLSVEDAFEPCKNLAAAATIL
QGNFQVAKGKVHDDQAALHAALSAYNTGSFSKGFLNGYVQKVLNNAGVTVQGVSAQQA
                                                                                                                                                                                                                                                                                                                                                                                  /transI_table=11
/product="conjugal transfer protein"
/protein_id="AAF85571.1"
/db_xref="GI:9112240"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /product="transcriptional regulator"
/protein_id="AAF85570.1"
/db_xref="GI:9112239"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1. .51158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Location/Qualifiers
                                 /note="identified by sequence similarity; putative; ORF
located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                    VKLKAAGEGKASPQGSGVNVYDTNTNDVMVY"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /note="identified
located manually"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TGLTQNWISMVENGRSTISIDNMAKLAKCVNVPLWKLLIPPL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             translation="MPMPHKQKTVNKVKAVEPERLIFGRNFRNARNMAKLSQREIAEK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'gene="XFa0001"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        'plasmid="pXF51"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Xylella fastidiosa"
/db_xref="taxon:2371"
codon_start=1/
                                                                                                       /gene="XFa0003"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  codon start=1/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="XFa0002"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             transl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="identified by ocated manually"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="XFa0001"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Brazij
                                                                                                                                                                          XFa0003"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             by sequence similarity; putative; ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sequence similarity; putative;
```

```
/product="topoisomerase I"
/product="topoisomerase I"
/protein_id="hAF65572.1"
/protein_id="hAF65572.1"
/db_xref="Git:9112241"
/translation="mKLMIIESPGKIEKLSTIIGDGWKIAASVGHVRDLPQKEMGVAA
/translation="mKLMIIESPGKIEKLSTIIGDDDREGEAISWHLQQCLKLSNPLR
/translation="mKLMIIESPGKIEKLSTIIGDDREGEAISWHLQQCLKLSNPLR
/translation="mKLMIIESPGKIEKLSTIIGDDREGEAISWHLQQCLKLSNPLR
/translation="mKLMIIESPGKIEKLSTIIGDREGEAISWHLGQCLKLSNPLR
/translation="mKLMIIESPGKIEKLSTIIGDREGEAISWSAEWLIKPKFVAEDNPY
/product="mklmiiespgkiekl"
/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3065.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SHYTQATLVKKLESEGIGRPATYAAIMDNIVSRGYVKTEKKYLFPTETGELIVDSLVG
KFEFLDLGFTREIEESLDRIAQGESGYKAVIAKVHDQLNMELSTLQVSATPKHPCQEC
GKPLRRIPGKNGHFWGCSGYPDCSVTFPDEGGKPGQKKPVEVSNFACVKCGNPLKHLV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="conjugal transfer protein"
/protein id="AAF85575.1"
/protein id="AAF85575.1"
/db_xref="0f1:9112244"
/translation="MSNSTQDVYTDPLFVGLTRPASILGIPYBACVAEFMAMGLIFLS
VNNPLYLALALPMHAYLYLISANDPKIFSSIHMWLKINGRCRNFLFWRASSFSPLATK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               similarity;
                                           /translation="mgaafkyadalknekstalfipysshvtknvvklvngdyiatir
mggaahesadvodinswhdolngfmrniaspntavwshyvrreygefpggefygegfch
dfnekyrkhmasekmlvnelyitvvkrpopfvkavkfldifsskapkeloorqtbeler
vedlisvalasidrvepeligcyehkokmesbyleflafilvedgmrrfplprteirev
latsrpffgkgglmslkgptstofcaavtiqeypsitcegilnellgmpfefyltogsf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="mNTISESELADFVKNQAVKKLHIIQNDAEKYEIFATLTWKEGDW
HLVTTRGKPREWASLDRLSHHIREKYGSTLPPISLTLRNILSK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KKGKGGYDFWGCSGFKEGCKATYEDKKGKPNFEKAK"
SFISKPVAVGRMKRQQARMVNSGDVAGSQIDEIDDALDDLTSNRFVMGVHHFSMMIRI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4094.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          KLEKVRLLTRIVKYFRVREN"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="XFa0006"
3712. .4080
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /product="conjugal transfer protein"
/protein_id="AAF85574.1"
/db_xref="GI:9112243"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /product="hypothetical protein"
/protein_id="AAF85573.1"
/db_xref="GI;9112242"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transl_table=11/
                                                                                                                                                                                                                                                                                              /product="conjugal transfer protein"
/protein_id="AAF85576.1"
/db_xref="GI:9112245"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4094. .6541
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3712. .4080
/gene="XFa0006"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="XFa0004"
3065. .3328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /note="identified by sequence similarity; putative; ORF
located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             'gene="XFa0007"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              'gene="XFa0007"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        codon_start=1/
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   'translation="MKVSALLCLTAVFLTPEIAMAAAMDNVAQQVLAILTGGLTRTIV
.IGVIACGIAAIAGKLSWDWAIKIIIGIVLIFGSASIVDYIISAVA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           'codon_start=1
'transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="XFa0005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          note="identified by sequence similarity; putative; ORF ocated using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="XFa0005"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="hypothetical
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene="XFa0004"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    thetical protein; identified by sequence putative; ORF located using Glimmer/RBSfinder"
```

CDS

CDS

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x AE003851 (1-51158)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.:
                                                                                                                                                                                                                                                12674
                                                            12941
                                                                                                                                                          12881
                                                                                                                                                                                                                                                                                                                                                                                                                                                            12722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   12623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    12575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gg
                                                                                                                                                                                                                                                                                                          118
          160
                                                                                                                                                                                                                                                                                                                                                                                                           98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGly 57
GlyLysAlaIle-----IleAspGlnIleValAlaLeuAsnSerGlySerValLeuVal 177
                                                                                                                                                  GCATCGTGTCTACGGATGAAGCCTGACCGCATTTTGCTGACGGAAATGCGGGGGGGATGAA 12940
                                                                                                                                                                                               LysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAsp 157
                                                                                                                                                                                                                                                                                                  AlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluVal 137
                                                                                                                                                                                                                                                                                                                                                                                                        ProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAla 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThr 97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCys 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCAAGAAAAGCAATCGCATCAAA------GAATTCTTGAAGCTCGCCATGCAGCAC 12673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTGATGCTTCCGGCACTCTGCACCCGTATGAAGTCGAGTTG------CTTGCT 12622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIleGlu 37
                                                 GCATGGGAATTCGTCAAGGCTGTGGGTTCAGGGCATCCAGGCATCAGCACGGCACACGCT 13000
                                                                                                                                                                                                                                                                                                                                                      ACGGTTGAAGAC-----GTGCATGAAATGTTCTTGAACCATCACCCCAACAAGGTG 12820
                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATCGGAAAAAGCATCACAAATTGCATCCCAACAGAT------GAACGCCTGGTG 12769
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ACGCTGGTGATTGTTGGAAAAACCGGCTCGGGCAAAACCACT 12721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HDQKALNEH1SDTGAVMSDSGMKMAREDAGIAGAFWSQLPGNFEYRVRVGDITSRNFA
GFSSFHNFF1GRIRNNQWGDAVMFKTTSGAPFYFNFHKGEEGADAKKSAKLDENHKD
LANITVVIGKSGMGKTVLEMMLLAQTQKFEQPGPGKKLSCVLFDKDLGAAIGVRAMGGR
YYPLKMGVPSGFNFPQMSPTTSNLTFLETLIKQLVKHBSLPLTPRQEREISBALANGM
GAAKQKRRIGALLEFLDSTDENGLHPRLERWCRGGTLAMLFDNPVDTLSLDNCTIVGF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /product="conjugal transfer protein"
/protein id="AAF85577.1"
/db_xref="GI:"AAF85577.1"
/db_xref="GI:"9112246"
/translation="MKLFKKPFGFFALMIGLSVGNLANAGMPVIDWANLEQAOLOVEA
WKKQYEQMTSQIEQVKQQYESTNGIRNMGSLVNNPAARQYLPADYATILSQGVGNWAA
IRSAAEKFDVSMTSLAANSDTAQAFQQAAKQAALNRASAEMAYSTASQRFSDIQVLLD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="XFa0008"
6538. .7218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DVTEFLONDATRTPTIMYLFHRIESLIDGRRIFILDEFWKLLNDPAFEDLÅQNKLVT
IRKQDGFLVMFTQSPKQVLKSPIAYAIIGQTATKIFLPNPEADYDDYVNGFKLTEREF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PAVWLPEFHRIRKGAIA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       EIVKSLGEKSROFLIKOGONSVVAELNLRGFDDELAVLSGNTATSLLAEKLVAELGDD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /gene="XFa0009"
7339...7500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KINNAPDAKDI ADLQARI QVEQVMMQNEANKLQALQLL VNAQRDLQI QQNKE I SMKSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /gene="XFa0008"
/note="identified by
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       note="identified by sequence similarity; located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      'gene="XFa0009"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         38.50%
22.07%
8.09%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     546
90.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  7500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 51158
47
35
80
51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 putative;
                                                                                                   ---Glu 159
```

Ś 밁 S 밁 8 문 Ś 밁 δ 밁 S 밁 Ş 밁 ş 밁 S

```
ACCESSION
VERSION
KEYWORDS
SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ANGDHA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     13055 ACCGGCGCGCATTTG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          13001
                        exon
                                                                                                                                                   exon
                                                                                                                                                                                                                                                                                                                      mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               prim_transcript
exon
                                                                                       intron
                                                                                                                                                                                                                  intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GCCGGGCCCTAGAAGCCTTTGACCAGATTGTGGCCCTTATCAAAGATAGT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CysGlnGluGlnIleLeuValThrGluGluValValVal 210
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATCAAGAAGCGAGTTTTTGAGACGGTCGATATCGTGCTT 13120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  glutamate dehydrogenase.

Emericella nidulans.

Emericella nidulans.

Emericella nidulans.

Emericella nidulans

Eukaryota; Fungi; Ascomycota; Pezizomycotina; Eurotiomycetes;

Eurotiales; Trichocomaceae; Emericella.

1 (bases 1 to 2334)

1 (bases 1 to 2334)

1 (hawkins, A.R., Gurr, S.J., Montague, P. and Kinghorn, J.R.

Nucleotide sequence and regulation of expression of the Aspergillus nidulans gdhA gene encoding NADP dependent glutamate dehydrogenase Mol. Gen. Genet. 218 (1), 105-111 (1989)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Data kindly reviewed (25-FEB-1991)
Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Aspergillus nidulans gdhA gene for dehydrogenase.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           X16121.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    89384423
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="gdhA"
/codon_start=1
/product="NADP linked glutamate (
/protein_id="CAA34252.1"
/db_xref="GI:2348"
/db_xref="SWISS-PROT:P18819"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /organism="Emericella nidulans"
/db_xref="taxon:162425"
293. .>1885
                                                                                                                                                                                                                                                                                                                                                                                     /translation="MSNLPVEPEFEQAYKELASTLENSTLFEQHPEYRRALQVVSVPE
RVIQPRVWERDKGEVQINRGYRVQFNSALGFYKGGLRFHPSVNLSILKFLGFEQIFK
NALTGLNMGGGKGGSDFDFKGKSDSSIRRFCTSAFMTELCKHIGADTDLFABDIGVTGR
RUGFLFGQYRRIRNQWEGVLTGKGGSWGGSLIRFEATGYGVVYYVQHMIKHVTGGKES
FGKRVAISGSGNVAQYALKVIELGGSVVNSLDSKGSLIVKDESASFTPEEIALIAD
LKVARKQLSEATGNSAFAGKETYIBDARFWTNSLFGKFEVALDSATQNEVSGEBABHLAD
LKVARKQLSEATGNSAFAGKETYIBDARFWTNSLFGKFEVALDSATQNEVSGEBABHLAD
KKGYRYIAEGSNMGCTQAAIDIFEAHRNANPGDAIWYAPGKAANAGGVAVSGLEMAQN
828. .>1885
/gene="gdhA"
                                                                                                                                                                                                                                                                                                                                                                 SARLSWTSEEVDARLKGIMEDCFKNGLETAQKFATPAKGVLPSLVTGSNIAGFTKVAE
                                                                                                                                                                                                                                                                                                                                                 MKDQGDWW
                                            number=2
                                                            gene="gdhA"
                                                                                                             number=2
                                                                                                                               gene="gdhA"
                                                                                                                                                                         number=1
                                                                                                                                                                                                                                                          EC_number="1.4.1
                                                                                                                                                                                                                                                                                                  gene="gdhA"
                                                                                                                                                                                                                                                                                                                        oin (400.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    00. .1885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GI:2347
                                                                                                                                                                                         gene="gdhA"
                                                                                                                                                                                                                                    note="glutamate
                                                                                                                                                                                                                                                                            product="NADP linked glutamate dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene="gdhA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         number=]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          oin (400.
                                                                                       . 827
                                                                                                                                                                                                                    .498
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          .445,499. .774,828. .1885)
                                                                                                                                                                                                                                                                                                                        .445,499. .774,828. .1882)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     by Kinghorn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DNA linear PLN :
NADP-linked glutamate
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         dehydrogenase"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GACGCCGCATAT 13081
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          J.R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PLN 18-FEB-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -GCT 13054
```

```
BASE CO
                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                 명
                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x ANGDHA (1-2334)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                         REFERENCE
                                                                                                                                  SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                             DEFINITION
ACCESSION
                                                                                                                                                                                                                                                     RESULT 33
                                                                                                                                                                KEYWORDS
                                                                                                                                                                               VERSION
                                                                                                                                                                                                                          Pocus
                                                                                                                                                                                                                                      AE004083/c
                                                                           AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                polyA_signal
polyA_signal
E_COUNT 44
                                                                                                                                                                                                                                                                                 1670
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1493
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1313
                                                                                                                                                                                                                                                                                                                                          1631
                                                                                                                                                                                                                                                                                                                                                                                                  1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No.:
                                                                                                                                                                                                                                                                                                             182
                                                                                                                                                                                                                                                                                                                                                                      162
                                                                                                                                                                                                                                                                                                                                                                                                                              142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        MetSerTyrGlnGlyGlyLeuTyrThrPheAlaPro----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCCTCCGCTTTCGCCGGCAAGTTCACCTACATCCCCGATGCTCGCCCTTGGACCAACATT 1432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluLeuAlaLysGluAlaIleLeuLysIleAsn---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeu 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCGAGCACCTCATCAAGTCCGGTGTCCGCTAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCCGGCAAGTTCGAGGTTGCTCTCCCTTCTGCCACTCAGAACGAAGTCTCCGGCGAGGAA 1492
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CTTTCCGACTCCAAGGGCTCTCTCATTGTCAAGGATGAGTCCGCTTCTTTCACCCCCTGAA 1312
                                                                                                                                                                                                                                                                                                             LeuLeuGlnAsnProAla
                                                                                                                                                                                                                                                                                                                                                                    AlaIleIleAspGlnIleValAlaLeuAspSerGlySerValLeuValAspGlyLeuGln 181
                                                                                                                                                                                                                                                                                                                                                                                                                            GlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLys 161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyr 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AlaValAsnThrileLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAsp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----TyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCys
                                                                                                                                                                                                                                                                                 ATGGCTĆÁGÁÁĆTCTGĆŤ
                                                                                                                                                                                                                                                                                                                                                                                                                                                          TTT---GAGGCTCACCGCAAC-----GCCAACCCCGGCGATGCCATCTGGTAC-----
Simpson, A.J., Reinach, F.C., Arruda, P., Abreu, F.A., Acencio, M., Alvarenga, R., Alves, L.M., Araya, J.E., Baia, G.S., Baptista, C.S., Balvarenga, R.H., Bonaccorsi, E.D., Bordin, S., Bove, J.M., Briones, M.R., Bueno, M.R., Camargo, A.A., Camargo, L.E., Carraro, D.M., Carrer, H., Colauto, N.B., Colombo, C., Costa, F.F., Costa, M.C., Costa Neto, C.M., Coutinho, L.L., Cristofani, M., Dias-Neto, E., Docena, C., El-Dorry, H.
                                                                                                                                                                            AE004083
Xylella fastidiosa 9a5c,
AE004083 AE003849
AE004083.1 GI:9108022
                                                                                                                                  Xylella fastidiosa 9a5c.
Xylella fastidiosa 9a5c
                                                                                                                   Bacteria; Proteobacteria; gamma subdivision;
                                                                                      (bases 1 to 7099)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   449
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2183.
702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1885. .1889
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   14.2
90.00
37.63%
24.19%
8.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .2187
                                                                                                                                                                                                                                                                                                             187
                                                                                                                                                                                                                                                                                 1687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   O
                                                                                                                                                                                                                                                                                                                                          -GCCGCCAACGCTGGTGTCTCGCCGTCTCTGGTCTTGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   555
                                                                                                                                                                                                                       7099
                                                                                                                                                                                                         7099 bp
section
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                DNA
n 229
                                                                                                                                                                                                           of 229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----AlaAlaMetProLys 52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2334
45
25
60
8
                                                                                                                                                                                                                          linear
                                                                                                                                                                                                         0f
                                                                                                                      Xanthomonas
                                                                                                                                                                                                                                                                                                                                                                                                    GCCCCTGGTAAA
                                                                                                                                                                                                         the complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -ATTGCTGAG
                                                                                                                                                                                                                        BCT 15-JUN-2001
                                                                                                                    group;
                                                                                                                                                                                                                                                                                                                                          1669
                                                                                                                                                                                                                                                                                                                                                                                                  1630
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1618
                                                                                                                                                                                                         genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               JOURNAL
MEDLINE
PUBMED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE
```

6

```
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                              CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Docena, C., El-Dorry, H., Facincani, A.P., Ferreira, A.J.S.,
Docena, C., El-Dorry, H., Facincani, A.P., Ferreira, A.J.S.,
Ferreira, V.C.A., Ferro, J.A., Fraga, J.S., Franca, S.C., Franca, M.C.,
Ferohne, M., Furlan, L.R., Goldman, G.H., Goldman, M.H.S.,
Gomes, S.L., Gruber, A., Ho, P.L., Hohelsel, J.D., Junqueira, M.L.,
Kemper, E.L., Kitajima, J.P., Krieger, J.E., Kuramee, E.E., Laigret, F.,
Lambais, M.R., Leite, L.C.C., Lemos, E.G., Lemos, M.V.F., Lopes, S.A.,
Lopes, C.R., Machado, J.A., Machado, M.A., Madeira, A.M.B. N.,
Martins, E.M.F., Marino, C.L., Marques, M.V., Martins, E.A.L.,
Martins, E.M.F., Matsukuma, A.Y., Menck, C.F.M., Miracca, E.C.,
Miyaki, C.Y., Monteiro-Vitorello, C.B., Moon, D.H., Nagai, M.A.,
Nascimento, A.L.T.O., Netto, L.E.S., Nhani Jr., A., Nobrega, F.G.,
Nunes, L.R., Oliveira, M.A., de Oliveira, M.C., de Oliveira, R.C.,
Palmieri, D.A., Paris, A., Peixoto, B.R., Pereira, G.A.G., Pereira
Jr., H.A., Pesquero, J.B., Quaggio, R.B., Roberto, P.G., Rodrigues, V.,
de M. Rosa, A.J., de Rosa Jr., V.E., de Saltva, A.M., Silva, Sursa, A.P., da Silva, A.R., da Silva, F.R., da Silva, A.M., Silva, Sursa, A.P., de Souza, A.P., Terenzi, M.E.Z., Siqueira, W.J., de
Souza, A.A., de Souza, A.P., Terenzi, M.F., Truffi, D., Tsai, S.M.,
Tsuhako, M.H., Zago, M.A., Zatz, M., Meidanis, J. and Setubal, J.C.
Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Simpson, A.J.G., Reinach, F.C., Arruda, P., Abreu, F.A., Acencio, M. Alvarenga, R., Alves, L.M.C., Araya, J.E., Baia, G.S., Baptista, C. Barros, M.H., Bonaccorsi, E.D., Bordin, S., Bove, J.M., Briones, M. Bueno, M.R. P., Camargo, A.A., Camargo, L.E.A., Carraro, D.M., Carrer, H., Colauto, M.B., Colombo, C., Costa, F.F., Costa, M.C.R., Carrary, L. Colauto, M.B., Colombo, C., Costa, F.F., Costa, M.C.R., Carrary, M. C., Costa, M. C., C., Costa, M. C., 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2 (bases 1 to 7099)
Simpson, A.J.G., Rein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           and Marino, C.L.
The genome sequence of the plant pathogen Xylella fastidiosa.
Xylella fastidiosa Consortium of the Organization for Nucleot:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Fraga, J.S., Franca, S.C., Franco, M.C., Frohme, M., Fur. Garnier, M., Goldman, G.H., Goldman, M.H., Gomes, S.L., (Ho, P.L., Hoheisel, J.D., Junqueira, M.L., Kemper, E.L.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Facincani, A.P., Ferreira, A.J., Ferreira, V.C., Ferro, J.A., Franca, S.C., Franco, M.C., Frohme, M., Furlan, L.R., Fraga, J.S., Franca, S.C., Gruber, A., Gomes, S.L., Gruber, A., Kitaine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Submitted (02-JUN-2000) Organization for Nucleotide Sequencing and Analysis, Bioinformatics Lab - IC/Unicamp, C.P. 6176, Campinae, SP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequencing
Nature 406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Costa-Neto, C.M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2036571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10910347
                                                                                                                                                                                                                                                                                                                                                                                           /gene="XF2778"
complement (516. .1871)
/gene="XF2778"
                                                                                                                                                                                        /note="similar to SP|P25522 (percent identity: 47 %/query alignment coverage: 100.4 %/subject alignment coverage: 99.8 %); identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              complement (79.
/gene="XF2777"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          complement (516. .1871)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NPLSRRSTPKEAHPAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="hypothetical protein"
/protein_id="AAF85562.1"
/db_xref="GI:9108023"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      similarity;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (79.
/product="thiophene and
/protein_id="AAF85563.1"
                                                                                                 /codon_start=1
/transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /note="hypothetical protein; identified by similarity; putative; ORF located using Gli
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1. .7099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ocation/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=
transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="XF2777"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        organism="Xylella fastidiosa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  translation="MPQPNTTGNTFALHQYIPNRADFYPHTDPAMQYIVLPQTFKPPF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone="9a5c"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    and Analysis
(6792), 151-157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Brazil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         xref="taxon:160492"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Coutinho, L.L., Cristofani, M., Dias-Neto, E.,
                                                                                                      _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      .261)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (2000)
                                                        furan
                                                        oxidation protein'
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Costa, M.C.R.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                for Nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Baptista, C.S.,
Briones, M.R.S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Acencio, M.,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kitajima, J.P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Α.,
```

gene

```
/translation="msqrstkmgdtiaaiatasgaagigiirlsgsliktiatglgmt
Tlrpryahytrpldvqdeviddglalwppaphsptgedvlelqghgsplllrqlltrc
Dlgarqahpgepseraflmgkldliqaraiadmigaadlraraarrsidgvpsrrc
Ealaqqlirlrihveltatidpaesidtidraqirtslqtlnveltqdlrdaehgkrl
Galytvlugpprvgkssllnaligsdraivvldvcpgttrdtlresvhfhclefvludta
Glreegdaieregmrtlnelqradlalvvldacdpqigslaladaltsvprvlwih
Kldllteppsaldtdvipvsamtgagletlktrlrtllgetvetiegefsarlrhvo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /translation="MNQTRVLLIFSWLTVATLLWMDWGKVKNETLEISASQNLGVDSN
LELEHAVPQINAGAVPVQKDSQLIAVAPKVPVINVKTDVLQLKLDGFSYLAADLLRFP
QSKDRGAKPIKLLTDDPNYPYSATTGWVSQSNSPVPNLSTLPEQPGVSYKLANDQDR
LVVPFVWTAANGVSIRTTFTFERGRYAILIRDEIRNGGETPWNAYVFRKLSRVPIPNI
LNRAWTNPDSFSFNGAVWYSEKGGYERRAFKDYNDGGLNREIGGGWIALLQHHFFTA
WIPQKDQASLYLLAQNGSRDIAELRGPAFTVAPGQSTTTBARLWVGPKLVEQITKEHV
                                                                                                                                                                                                                                                                                                                                                                                                                                       KGLDRVVDYSRFQLMALIGQGLFWILSHLNSLLHNWGWAIVGLVVLLRIAMŸPLSAAQ
YKSAAKWRKFQPRLQQLKERYGBDRQKFQQAMMSLYKKEKINFWGGCFPILŸQWFIFF
ALYWYLVESVBLRQAFWLGWIQDLYTTRDPYFILFLLMIVIMMATQKLTPETPÄGKUPDIK
GKMMQVMPLIFGVMMAFVPSGLALYWVINGGLNLLIQWMMIRQHADFSRKRSRGNIK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /note="similar to SP|P25754 (percent identity: 40 %/query alignment coverage: 89.2 %/subject alignment coverage: 90.0 %); identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="XF2780" complement (4670. .6367)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="mfnkvtplssfllnlctllalvackHqstpvesaspvttvsvdv
kHspdpqqaqpllaslHqqlesyrrimvlltddbevqspqervtssqvgq1lfneglnq
RTAFSKRIDALLASGApsrpdtltvildy1esspdlydadrlafrealndldarinhd
                                                                                                                                                                                                                                                                                                                                               complement (6412. .6840)
                                                                                                                                                                                                                                                                                                                                                                                                         complement (6412. .6840)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (4670. .6367)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATTQLNRGDI YLQLNNKDKARKTYTTDVDLQPEDSGTKQLGMKLTKL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product="hypothetical protein"
/protein_id="AAF85564.1"
/db_xref="GI:9108025"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="hypothetical protein; identified by sequence
similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (1868. .4579)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (1868.
                                                                                                                                                                         ,...u-u--"Bimilar to SP|P06277 (percent identity: 37 %/query alignment coverage: 74.6 %/subject alignment coverage: 89.1 %); identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="60kDa inner-membrane protein"
/protein_id="AAF85565.1"
/db_xref="GI:9108026"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ALQRTAAHVTDANAQFAYEHLELTAEELRLAYKALGEINGSMSPDELLGRIFSNFCIG
   /protein_id="AAF85566.1"
/db_xref="GI:9108027"
translation="""
                                                                                                                                                                                                                                                                                                                                                                            /gene="XF2781"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /codon_start=1
/transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /gene="XF2779"
                                                                                                                                                                                                                                                                                                                     /gene="XF2781"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /gene="XF2780"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="XF2779"
translation="MCLHLGTLNSCKRFPRSARICLRSEYYVAFEQGRRYSSVLLRLH"
                                                                                                                           codon_start=1
transI_table=11
```

gene CDS

gene

```
밁
                               Ś
                                                                        밁
                                                                                                            S
                                                                                                                                                 멼
                                                                                                                                                                                 Ş
                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                       멼
                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                              멹
                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x AE004083 (1-7099)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4186
                                                                                                                                                                                                                                                                                                       3892
                                                                                                                                                                                                                                                                                                                                                                                                                                                         4012
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4072
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4246
                                                                          3715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             4126 GATCTT-----GACGCCCGTATTAACCATGATTCGGCGCTTCCGGCGATAAAGTTGCGT 4073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sg
3655 AAAATTACCCGTGAGCTAATÄGAGĆÄÄGGATACGĆÄGTTGCTAATCATÄGTATGACCCAT 3596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                     162
                                                                                                                                                                                         131
                                                                                                                                                                                                                                                                                                                                           93
                                                                                                                                                                                                                                                                                                                                                                                                                    74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCACTGCTTGCTCTGGTGCTCCTAGCCGTTTTGATACTTTGACAGTAATACTGGATTAT
                                                                                                                                                                                       MetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHis 150
                                                                                                                                                                                                                                                                                                     TATGGAATTCTCGAAGCTTATCCGATACCAATGGAAGAAGCGAACATGAGATATTTGGT 3833
                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTACTCGGCTATCTATTCCTTTTGATCGTAATCGTGGAATCTTTATTAAGCGTGAAAAG 3953
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ATTGAGTCCTCCCCTGATCTCTATGACGCTGATCGTTTGGCCTTTCGTGAAGCGTTAAAT 4127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaGluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyr
                                                                        GTTGGACGTAATATTGGCAGATTCGATAGGGCCGGAAAACCGCAATTAGGACCTTTATCT 3656
                                                                                                            ValValSerPheAlaAsp-----AspAlaGluGlyLys-----
                                                                                                                                                   ACAAATGAAATCAAAGAAATCTTACAGCACTATGCTGTG---CCAGCAGTGTTCTTCGAA 3716
                                                                                                                                                                                                                            AATGAATTACCTCCTAAAACATTAGTACTTACCTTCGATGATGGCCCGCATCGAGTTTAT 3773
                                                                                                                                                                                                                                                                AsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGly 130
                                                                                                                                                                                                                                                                                                                                       PheGlyArgLeuThr-----ProValGlyAspGlyIleLysMetHisGluThrValIle 110
                                                                                                                                                                                                                                                                                                                                                                              TGGGATGACTACGTGGCGCATTTGCGTCGTTCTTACACACGTAAAATGATTTTGCATGAT 3893
                                                                                                                                                                                                                                                                                                                                                                                                                  TrpAsnSerCysValAlaGluCysAlaValAsn---ThrIleLysSerAspLeuGluIle 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAACGTATTCATGAAGATATAGATGCATTAAATCAGATTGAGCGCAACTACAATCAGGAA 4013
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGlyLeuTyr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerGlySerMetMet------MetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----ThrPheAlaProTyr-----SerValIleIleProGlnGlySer 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1980
                                 ----AlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuVal 177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       മ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="similar to SP|P44370 (percent identity: 76 %/query alignment coverage: 93.5 %/subject alignment coverage: 97.7 %); identified by sequence similarity; putative; ORF located using Glimmer/RBSfinder"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (6878. .7018)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             HLPTSGPVRLGLVVSRRVDIRAVNRNRIKRALREVMRQIAYKLVPGDYVVVVRQTAKD
VSNAELSVALLSLLRRIGALPLAPIDNAMLPFFERNCSRK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (6878. .7018)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /product="50S ribosomal protein L34"
/protein_id="AAF85567.1"
/db_xref="GI:9108028"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /codon_start=1
/transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         'gene="XF2782"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            translation="MATKRTYQPSNLKRKRDHGFRARMSTADGRKILARRRAKGRKRL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               55.1
90.00
38.37%
20.93%
8.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ი
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1643 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1892 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7099
54
45
101
58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1 others
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60
```

/protein_id="AAF96072.1" /db_xref="GI:9657549"	ed by Gl	/product="hypothetical protein" /protein_id="AAF96071.1" /db_xref="GI:96575.48" /translation="MMKKECPHCHCEMLERANLYICPRNAIGDCVYDAMLTNELPLVS /tPDSECSHPDERPTPDSOSK"  gene	<pre>/note="biotype: El Tor" gene</pre>	JOURNAL Submitted (14-JUN-2000) The Institute for Genomic Research, 9712  Medical Center Dr., Rockville, MD 20850, USA Location/Qualifiers  1. 17041 /organism="Vibrio cholerae" /strain="N16961" /serotype="01" /db_xref="taxon:666" /chromosome="11"	ORGANISM Vibrio cholerae  Bacteria; Proteobacteria; gamma subdivision; Vibrionaceae; Vibrio.  REFERENCE 1 (bases 1 to 17041) 1 (bases 1 to 17041) 1 (bases 1 to 17041) 2 (Gill,S.R., Melson,K.E., Read,T.D., Tettelin,H., Kichardson,D., Ermolaeva,M.D., Vamathevan,J., Bass,S., Qin,H., Dragoi,I., Sellers,P., McDonald,L., Utterback,T., Fleishmann,R.D.,  Nierman,W.C. and White,O.  TITLE DNA sequence of both chromosomes of the cholera pathogen Vibrio cholerae  JOURNAL Nature 406 (6795), 477-483 (2000)  MEDLINE 20406833  PUBMED 10952301  REFERENCE 2 (bases 1 to 17041) Dodson,R.J., Haft,D.H., Hickey,E.K., Peterson,J.D., Umayam,L.A., Dodson,R.J., Haft,D.H., Hickey,E.K., Peterson,J.D., Umayam,L.A., Sellers,P., McDonald,L., Utterback,T., Fleishmann,R.D., Sellers,P., McDonald,L., Utterback,T., Fleishmann,R.D., Mekalanos,J.J., Venter,J.C. and Fraser,C.M.	Qy 198 CysGlnGluGlnIleLeuValThrGluGluValValLeuArgGlyValAsn 215    Db 3541
CDS	gene	gene CDS		gene CDS	gene CDS	gene CDS

```
/codon_start=1
/trans1 table=11
/product="tryptophanase"
/protein_id="AAF96074.1"
/db_xref="GI:9657551"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /translation="mkkfknilfatqglpghsdaleqaiqlaynnrqqlagliafpaf
padlqryqeyeqsylmtlmeyveacrqqhhihkdeypflavehsbqpavaliksal
nhhidlikeaepmthsqqqfkaldmtllrkcpcpvwlhrkapkanrrvavaldpi
TTTEQQKALALELLELSKIANTCDSELHIYSCWEYYLENYLHQVWIQVEQQQIAEE
IAQAKIRHEQALRQLIDESGITGELVIHHLHGKPDELIPEWVTQENIDILVMGTLART
GIAGFVIGNTARNIVQSIECSLVALKPEGFVSBIKNE"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /translation="MENFKHLPEPFRIRVIEPVKRTTREYREKAILNAGMNPFLLDSE
DVFIDLITDSGTGAITGEMQAMMERGDEAYSGSRSYHALARANGDIFGYEYTI PTHQG
RGAEGIYIPVLIKKEKEKGLDRSKMYNALSNYFDTTGGHTQINCCVAKNVYTEEAFD
TGVKADPKGBYEDLEKLEYGAILEAGPANVPYIVSTITCNSAGGQPVSIANLKAVYEIAQ
RYDIPVIMDSARFAENAYFIQQRERDYRNWSIEEITREAYKYADGLAMSAKKDAMVQM
GGLLCFKDESFFDYTTECRTLCVVQEGFPTYGGLEGGAMBRLAVGLYDGMRQDWLAYR
INQUXYLVNGLEAIGVICQQAGGHAAFVDAGKLLPHIPADGPPAHALACELXKVAGIR
AVEIGSILLGRDPATGKQHPCPAELLRLTIPRATYTQTHMDFIIEAFEKVKANARNVK
GLEFTYEPPVLRHFTARLKEKA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /translation="MKPKDFIMSKQPSLFGGACIIASVCVGAGMLGLPSAGAGAWTLW
SMLALALTMAVMTLSGWMLLEAFKHYDLRVSFNTVTKDMLGSHINRFNNLTVFVGGI
LLYAXITSSGLILQDLLHINSKIASILFVAVFSAFVWHSTRAVDRISVILVFWVLSF
IFGVSGLAINVKTSILFDTLNQSGEYAPYAMAMLPVALLTSFGAYHSVSSKRAYYGEBER
KAKYAILGGTVIALSLYALMLFSIFGNLPRADFAPVIQQGGNVDVLLKALGSVVESEK
VSQAINAFSMAAILSSFIGVGLGVFDFLADLFQFSNCKQGRTKTWLVTFLPPLILSLL
FPFGFFIALGYAGAAATIWACIIPVLLARKSRTLANGAQGFVVPGGNLALGLVLIFGV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /note="similar to GB:L42023 SP:P44614 PID:1003469 PID:1222213 PID:1204542; identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (1513. .2748)
/gene="VCA0160"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transT_table=11
/product="hypothetical protein"
/protein_id="AAF96075.1"
/protein_id="AAF96075.1"
/db_xref="G1:9657552"
/trans1at_ton="MNIVDNSAGRILKRSVRKVNIFLHLDAEKNSGINVIHHPLFYFLL
AYSQFIHLSDDEWLFSSIIKVGLK"
                                                                                                                                                                                                                                                                                                                                                    /gene="VCA0163"
5026. .5238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (4811. .5017)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (4811. .5017)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="similar to GB:L10328 SP:P00913 GB:X15974 PID:147997 PID:290556; identified by sequence similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement (2827. .4245)
/gene="VCA0161"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            complement (2827. .4245)
/gene="VCA0161"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LTAVFHMMAMANLLPAFKG"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product="tryptophan-specific transport protein"
/protein_id="AAF96073.1"
/db_xref="GI:9657550"
                                 complement (5308. .5892)
                                                           ELGVLLELCLAIKIEGLESLVKPLKQ"
                                                                                         /codon_start=1
/trans1_table=11
/product="conserved hypothetical protein"
/protein_id="AAF96076.1"
/db_xref="GI:9657553"
/translation="MFEKTHLIKLAQMKMPFGKYAGRVLIDLPEPYLLWFQKQGFPEG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="VCA0162"
note="identified by Glimmer2; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="VCA0162"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      codon_start=1
transl_table=11
/gene="VCA0164"
                                                                                                                                                                                                                                                                                  'note="identified
                                                                                                                                                                                                                                                                                                                      'gene="VCA0163"
                                                                                                                                                                                                                                                                                  by Glimmer2; putative"
```

complement (5308.

.5892)

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                       Score:
                                                                                                             Alignment Scores:
                                                                                                                                                                gene
                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                            ₽
0
::
                                                                                                                                                                                                                                                                                                                                                                                                        gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             trānslation="mfprtllkrvtssrnyrmlabttfbylttfllsqsagivrapsq
DVAGHTLLSSNTFTplbay bearwarapptsbglippalitckmytlpvmggssfi
FMLDNHPQHRTYLIIQARCVDKYHLSTQSGBLDFQLLRAKWQCLRABIBASKBERNE
DLRBAQYLSBIRQRBQFIDNMKLVHQVALBLSNPANLDELHRASVEAMRHRLGFDRSA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="V
                                                                                                                                                                           /translation="MVENVTRCGTSLSSVKRSINGRTSMTNINTKAATVLG;SLIIGL
SALGELVQQMAVKFKEYERVVAAVKGLSEREVVAADVINETQFTVADNQLSSLFATVDQ
QTQLITQFLVEKGVDRAAISLSAPAVIDKKAQQYGEDRAFERYLATQTLTVYSKQVDQ
VRKIISBIGQLGKQGVVFNQDFYNNRVEFSFTGLNAIKDDMIEBATKQAREVAQKFAK
DSQSTLGKIKTASQGQFSITORDNNTFYIKNVRVVTTVEYYLSD"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MTMLTDKGTPIAFIAADNLIRRSPLTSQLREVIRMFASNLTEVLMRAKAQEAISVLNE
TLELEVRNRTBDLQKANEKLDLMAKLDPLTRLGNRRMLEHQLEQTCEQTIKEVVNYGV
ILLDIDHFGLFNNCYGHLEGDIALMRIGNILSRHAQSEHELFCRIGGEEFLLLVANRS
ABEIHLLAENIRKSIEAECIEHCENPSGELLTVSIGYAASRYKPREIQFDQLYAEADK
ALYRAKSQGRNQVIGVIVENIDCIQAEM"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LLLLDMKKRCFSGTYCTDEHCNTIDEQHTQYDLHQLBPQYLBALSNEECTLMVVEDVP
LYTVGQVVGGCMVAMLIRDGHDTIGHIAIDNINGPTITSYCKJMLESSGSLLAQIY
IRKKOEQNVRMLHASMVELSRCMTVSEVCKSANTFAINRMGIDRMAVFIDEACSYD
GTWGTDIQGNIVDESYFRGSTHENDIVDLAKVYPNEVVFKESVPIYHDCKIVGYGWTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /trānalation="maskksamittpoloverrylleigavchigsbwrlfsavlll
llifpnlsyaqvdlykydkskrmyllogneiireyrialgkspkghkqoegddrtpe
Ghylldfiebosfyrbihisyentrololaolrgvnpgddikihglkngderepgfv
Osfdwtngciaitnoemdeflslvopgvpiliew"
                                                                                                                                                              complement (9955.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="VCA0166"
8577. .8789
                                                                                                                                                                                                                                                                                                                                                                                  complement (9078. .9866)
/gene="VCA0167"
                                                                                                                                                                                                                                                                                                                                                                                                                    complement (9078. .9866)
/gene="VCA0167"
                                                                                                                                                                                                                                                                                                                                                                                                                                                        /translation="mSQKMTGSVKWFNETKGFGFISQDNGGQDVFVHFKSIVSEGFKT
LAEGQRVSFTVEQGKKGPQAAQVTAL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /note="similar to GB:L23115 SP:P37410 GB:X52093
PID:349561; identified by sequence similarity;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          6199
                                                                                                                                                                                                                                                                        /product="conserved hypothetical protein"
/protein_id="AAP96080.1"
/db_xref="GI:9657557"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /product="GGDEF family protein"
/protein_id="AAF96078.1"
/db_xref="GI:9657555"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           similarity; putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene="VCA0166"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              note="similar to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="conserved hypothetical protein"
/protein_id="AAF96077.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/transI_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      /gene="VCA0164"
/note="identified by Glimmer2; putative"
                                                                                                                                             gene="VCA0168"
                                                                                                                                                                                                                                                                                                                               codon_start=1/transI_table=
                                                                                                                                                                                                                                                                                                                                                                 note="identified by Glimmer2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                protein_id="AAF96079.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              product="cold shock transcriptional regulator CspA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    codon_start=1/
transl_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         codon_start=1
transI_table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene="VCA0165"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             db_xref="GI:9657554"
 161
90.00
42.96%
26.67%
8.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            xref="GI:9657556"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      table=11
                                                                                                                                                                                                                                                                                                                               _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CA0165"
                                                                                                                                                              .10497)
                                                                       Length:
Matches:
Gaps:
                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PID:1653866; identified
                    Indels:
                                                                                                                                                                                                                                                                                                                                                               putative"
 62526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                by sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    putative"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       REFERENCE
AUTHORS
JOURNAL
REFERENCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEFINITION
ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                            FEATURES
                                                                                                                                                                                                                                                                                                                                                                 COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SC9346/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FOCUS.
                                                                                                                                                                                                                                                                                                                                                                                                                    AUTHORS
TITLE
JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         13761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      13881
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                14112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14001
                                                                                                           source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77
```

```
US-10-034-500-2 (1-218) x AE004357 (1-17041)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 13821 GGTGAAATGGTGGTCAAAGATTTCCTGTTCAGTCGTAAGGTGAATACCGCGCAAGATCTG 13762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGAAAAGACACTG-----CAAACCATCGCGACCACCACAGGT 13723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACCGCGATTGGTGAAGGGATTGGACTCGCGACCAAAACCTTTATCGACAGTGATGCGCCG 13942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACCGTCGCTAACCAGCTTAATCAAACGGTA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGACTGATCCTGTTTGCCGATCACGCCTATCTGCAAACGCCTTTGACGTTGGATAGACAA 14053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GAAGCCGCCAATATCGCCAAACAGTACAACACCACGATTTATACCGTCGGCGTCGGTGCA 13822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluGluValLysSerIleTyrGlnThrAsnProAsnVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGly---MetAsnProVal 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu 96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyLeuTyrThrPheAlaProTyrSerValIle---IleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrProValGlyAspGlyIleLysMet----HisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                          Details of the omitted CDS are available on request. The more significant matches with motifs in the PROSITE database are also included but some of these may be foortuitous. The length codons and the calculated codon adaptation index (CAI)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Notes:
All CDS over 100 codons have been analysed. CDS that are completely overlapped by more than 50%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Direct Submission
Submitted (23-MAR-1995) Saccharomyces cerevisiae chromosome IV
sequencing project, Sanger Centre, Hinxton Hall, Hinxton, Cambr
CB10 1RQ B-mail: barrell@sanger.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Saccharomyces cerevisiae
Eukaryota; Fungi; Ascomycota;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Z48784.1 GI:755782
CBS2; cytochrome b activator;
SIR2 homologue; SLY1.
Saccharomyces cerevisiae.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S.cerevisiae
Z48784 Z71256
                                                                                                                                                                                                                                              is given for each CDS.

Cosmid 9346 is overlapped at the start of this sequence by cosmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SC9346
                                                                                                                                                                                                                                                                                                                                                                                                                                 analysis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                         of their length by a larger CDS have been omitted from this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Barrell, B., Rajandream, M.A. and Walsh, S.V.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Oliver, K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saccharomycetales; Saccharomycetaceae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cerevisiae chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 19236)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (bases 1 to 19236)
                                                                                                                                                                                              SC9395, Z46727 and at the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               and Harris, D.
chromosome="IV"
/map="4R"
                                                                                                           organism="Saccharomyces"
                                                  db_xref="taxon:4932"
                                                                                   strain="AB972"
                                                                                                                                                                ocation/Qualifiers
                                                                                                                                         .19236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----CysPheHisValValSerPheAlaAspAspAla 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19236 bp
IV cosmid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Saccharomycotina; Saccharomycetes; cetaceae; Saccharomyces.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MSS116; nucleoporin;
                                                                                                                                                                                                 end
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA
9346
                                                                                                                                                                                              of this sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTTAAACTTATCGGCACTCAA 14002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 RNA helicase;
                                                                                                                                                                                              à
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PLN 11-AUG-1997
                                                                                                                                                                                                 cosmid 8142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cambridge
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        147
                                                                                                                                                                                                                                                                                                                                          'n
```

clone="cosmid 9346"

```
gene
                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /note="overlap with cosmid 9395"
complement(1678. .3069)
/note="YD9346.02c, unknown, len: 463, CAI: 0.19; PS00017
ATP/GTP-binding site motif A (P-loop)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         VLYLTSTTGLPKDFVQNVENYFKENDYDINALKYVYKLREFMQLSNMSLQNKSLEDGS
DSAFKPSNLTLSGIYGLTEGKLQGGVGSLISGIKKLLPEKKTIPITNVVDAIMDPLNS
SQKNLETTDSYLYIDPKITRGSHTRKPKRQSYNKSLVFVVGGGNYLEYQNLQEWAHSQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /translation="LTLNDPKTTEEEITGLCANIADGLFNTVLTINSIPIIRAAKGGP AEIIAEKLGTKLRDFVLNTNSSSTSTLOGNDSLERGVLIILDRXIDFASNFSHSWIYQ CMVFDIFKLSRNTVTIPLESKENGTDNTTAKPLATKKYDIEDHDFFWHENSHLPFPEA AENVEAALNTYKEEAAEITRKTGVTNISDLDPNSNNDTVQIQEVVKKLEELTAKKNTIDTHWENSALNTYKEEAAEITRKTGVTNISDLDPNSNNDTVQIQEVVKKLEELTAKKNTIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFIDTHWNIFAALLSQLESKSLDTFFEVEQDPGSTKTRSRFLDILKDGKTNNLEDKLRSFI
                                                                                                                                                                                                                                                                                                                                                complement (4643. .5935)
/note="[9346.04c, unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /translation="MKQKFVLPITPPSTAEKKPQTENRCNENLKPRRLLPQLKKSVRN
RKPRLSYRPELNSVFDLDAYVDSTHLSKSQRHHMDRDAGFISYALNYSKRMVVVSGAG
ISVAAGIPDFRSSEGIFSTVNGGSGKDLFDYNRVYGDESMSLKFNQLMVSLFRLSKNC
                           TIQNTSTSSGTGVSPFGTFGTNSNNKSPFSNLQSGAGAGSSPFGTTTSKANNNNNVGS
SAFGTTNNQSPFSGGSGGTFGSASNLNKNTNGNFQSSFGNKGFSFGITPQNDANKVSQ
                                                                                                                                                                                                                                                                                                                                                                                                                             MECNKCLNIKPFDPELFKCDDKFDSRTEIIPSCPQCEEYETVRKMAGLRSTGVGKLRPRVILYNEVHPEGDFIGEIANNDLKKRIDCLIIVGTSLKIPGVKNICRQFAAKVHANRG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 QPTKFHEMLNEFARDGRLLRLYTQNIDGLDTQLPHLSTNVPLAKPIPSTVQLHGSIKH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /note="YD9346.03, unknown, len: 370, CAI: 0.13, low similarity to SIR2, SIR2_YEAST P06700 (26.9% identity in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RSTKILETSANYL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LHNPKKVMYGSTAITTPAEFLNEISRLGASNSSNNDA"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product="Sly1p"
/protein_id="CAA88703.1"
/db_xref="GI:755783"
/db_xref="SWISS-PROT:P22213"
SNPSFGQTMPNTDPNISLKSNGNATSFGFGQQQMNATNVNANTATGKIRFVQGLSSEK
                                                                                                                                                                                                                                                                                                                     similarity to nucleoporins"
                                                                                                                                                                                                                                                                                                                                                                                                    IVLYLNTSMPPKNVLDSLKFVDLVVLGDCQHVTSLL"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product="unknown"
/protein_id="CAA88705.1"
/db_xref="GI:755785"
/db_xref="SWISS-PROT:P53688"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       301 aa overlap)"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (2812.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="SLY1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /gene="SLY1"
                                                                                                                                                                                                             /protein_id="CAA88706.1"
/db_xref="GI:755786"
                                                                                                                                                                                                                                                                      /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product="unknown"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   codon_start=3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 note="YD9346.01, incomplete SLY1 gene, len: 487, ).18, SLY1_YEAST P22213"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="SLY1"
                                                                                                                                                                                       db_xref="SWISS-PROT:P49686"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         note="PS00017 ATP/GTP-binding site motif A (P-loop)"
                                                                                                                                                                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .2835)
                                                                                                                                                                                                                                                                                                                                                   430,
                                                                                                                                                                                                                                                                                                                                                   CAI: 0.10,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAI:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SdS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              misc_feature
                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                         misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="REF2"
9673 . 11274
/gene="REF2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement (7026. .9020)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (7026. .9020)
/gene="MSS116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 signature"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /codon_start=1
/product="Ms8116p"
/protein_id="CAA88707.1"
/db_xref="GI:755787"
/db_xref="SWISS-PROTI:p15424"
                                                                                                                                                                                                                                                                                                                                                                                                    KDRGGLPYKHVPIVKRNKYPPRPVH"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (8544. .8567)
                     /protein_id="CAA88709.1"
/db_xref="GI:755789"
/db_xref="SWISS-PROT:Q03941"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene="MSS116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     'gene="MSS116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gene="MSS116"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  'product="Ref2p"
  translation="MLVVGLTGGIACGKSTVSRRLRDKYKLPIVDADKIARQVVEPGQ"
                                                                                                          'product="unknown"
                                                                                                                                codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           codon_start=1
                                                                                                                                                                                       aa overlap); PS00017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      respect
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      to this sequence"
                                                                                                                                                                                          f. aquaticus) (4)
ATP/GTP-binding
```

```
/protein id="Caabb70b.1"
//db_xref="G1:75578B"
//db_xref="G1:75578B"
//db_xref="G1:75578B"
//db_xref="G1:75578B"
//db_xref="G1:75578B"
//db_xref="SMISS-PROT:P42073"
//db_xref="SMISS-PROT:P42073"
//translation="MSAPVPQLWISHALQASTIQQIRLDMVDFNKDCKLSSIQLARI
//translation="MSAPVPQLYMISHALQASTIQQIRLDMVDFNKDLYKKHEKQ
HHSTPPIANDVSLDFFVNQLPKSPERSTYIDHLILIAKNSHNRLSKMDGLVDAVINL
CYLDTSYARENVASYMKLLDTLGFQKGSNSTGTRANLKKKLASSKAKI KOSEKEKEKEK
CYLDTSYARENVASYMKLLDTLGFQKGSNSTGTSANLKKKLASSKAKI KOSEKEKEKEK
DKSKVKMKTKLKPSPLLNNDDKNSSPSPTASTSSMKKLKSGLFNKNEAKSTESLPTSS
KKKLSFSKYLNKDDADMYKLGTKRSIDVDFKVMPEASTVASNI ISSSTSGSSTTTVAT
PASSEEPLKKKTKISVODSNVQSILRNGFVKARI ISSIKFLDDSQLIKVYGDDLPNQG
LOVSPTQLKKILKPFKGGEPKBILFEDMSIKLKPDLMFLKNTNSDYMDISETKGG
PIHCETRTPLIYEKNFNHFNDDLNKRPPREPIEFDLNGNTNSTPTIAKAFGKNSLLLR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /note="YD9346.06, REF2 gene, len: 533, CAI: 0.15; RNA-binding protein involved in mRNA 3'-end formation; PS00599 Amino transferases class-II pyridoxal-phosphate attachment site; conflict with GENBANK entry SCU20261, accession UZ0261 at about 10949 results in a frameshift accession UZ0261 at about 10949 results in a frameshift
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /note="YD9346.05c, MSS116 gene, len:664, CAI: 0.21
MS16 YEAST P15424 ATP-dependent RNA helicase MSS116;
PS00017 ATP/CTP-binding site motif A (P-loop); PS00039
                             -phosphate attachment site"
complement (11348. 12073)
/note="YD9346.07c, unknown, similar to T05G5.5 CE00504
hypothetical protein A (T. aquaticus) (40.8% identity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DEAD-box subfamily ATP-dependent helicases signature"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DGILELADLAEETLKI FRANKFELGLVPDI PPPPALVA'
                                                                                                                                                                    /gene="REF2"
/note≈"PS00599 Aminotransferases class-II pyridoxal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            note="PS00039 DEAD-box subfamily ATP-dependent helicases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="PS00017 ATP/GTP-binding site motif A (P-loop)"
(40.8% identity
                                        'n
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x SC9346 (1-19236)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18760
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  16
                                                                                      LeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGln 201
                                                                                                                                                    AGAAACAAAACTTTATCTAAGATCCTCTCAGAAAACGGTGTACAAGTCCAGGATTCCACA
                                                                                                                                                                                                                                                               ATTGATAGTAAAACTGGCAGGTCATTTTGCGACCAAATAAGAAATCAAGTGACAAATGAA 18275
                                                                                                                                                                                                                                                                                                                    AlaAspAspAlaGluGlyLysAlaIleIleAspGlnIle---
                                                                                                                                                                                                                                                                                                                                                                            AATGAGCTTTGCATAGAACTACGAAATCTAATTAAGGTGACTAAAAAACCTTGGTGCGAG 18335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTTACTCAGTCTGCGAATCCACAGCTCACATCCTAGGACTGGAACTTACGCTTTGTAGG 18395
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AsnProAsnValCys-----PheHisValValSerPhe---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThr 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TTGAACCATTCTCTAATACTTTTTACAAAATCCTCCTAGAGAC-----CTGGTATTC 18497
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTTCAAGTAGCTACAGATGTCAGCGAATTCGTATCCAAATTTGGCGTGGCCATGGAACTT 18548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuThrProValGlyAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAA------ 18638
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLys 35
                                         TTACTTAACCAC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----HisGluThrVallleAsnGlnMetProProGlnAlaAlaVallleLeuLeuThr 123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SASSIVMSRLLMKKLQNKKSSAV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (12029.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAYDQIVLYFKDKIPNLLLEDGHLNREALGKWVFSHKEDLQALNGITHPAIRYAMFKE
IGYYYLKGYRMCVLDVPLLFEGNLDSICGVTVSVICTQELQLERLMTRNPELSEEDAK
NRLNSQMSTEERMARSDYILQNNSTLVDLYEQIESVVKKIQPSKLRTVLEYFPPFGAV
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      12302. .13471
/gene="CBS2"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="PS00017 ATP/GTP-binding site motif A (P-loop)"
12302. .13471
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /codon_start=1
/product="Cbs2p"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /note="YD9346.08, (
CBS2_YEAST P14905,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             186
90.00
33.98%
20.31%
8.04%
                                                                                                                                                                                                      -ValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGln 181
                                      -----ATAATTTCTTCTTTCAAAGTGAAGCT 18176
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----CACATTGTTGTCAGATTCCCACAA 18722
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---TTGAAAAATATTTTĞĞAAATACTGAATCAA 18608
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CBS2 gene (CBP7), len: 389, cytochrome b translational
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----AAGGAAATGTTCCAGGAT 18455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyIleLysMet----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAI: 0.13, activator"
                                                                                                                                                                                                                                                                                                                       167
                                                                                                                                                                                                                                                                                                                                                                                                                                     154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  105
                                                                                                                                                 18215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      154
                                                                                                                                                                                                                                                                                                                                            TITLE
JOURNAL
REFERENCE
                                                                                                                   REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ACCESSION
VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AC114131
LOCUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               $
        COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 36
                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                               JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ORGANISM
                                                                                         JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                RRS Muzny, D. M., Adams, C., Adio-Oduola, B., Ali-osman, F.R., Allen, C., Alsbrooks, S.L., Amaratunge, H.C., Are, J.R., Ayele, M., Banks, T., Barbaria, J., Benton, J., Binage, K., Blankenburg, K., Bonnin, D., Bouck, J., Bowie, S., Brieva, M., Brown, E., Brown, M., Bryant, N.P., Buck, J., Bowie, S., Brieva, M., Brown, E., Brown, M., Bryant, N.P., Buck, J., Bowie, S., Brieva, M., Brown, E., Brown, M., Bryant, N.P., Buck, J., Chaeko, J., Chaeko, J., Chaeko, J., Chaeko, J., Chaeko, J., Chaeko, J., Chen, G., Chen, R., Chen, Z., Chowdhry, I., Christopoulos, C., Cleveland, C.D., Cox, C., Coyle, M.D., Dathorne, S.R., David, R., Davila, M.L., Davis, C., Davy-Carroll, L., Dederich, D.A., Davila, M.L., Davis, C., Beotto, M., Earnhart, C., Edgar, D., Edwards, C.C., Elhaj, C., Beotto, M., Earnhart, C., Edgar, D., Edwards, C.C., Elhaj, C., Beotto, M., Earnhart, C., Edgar, D., Edwards, C.C., Elhaj, C., Beotto, M., Gill, R., Garner, T., Garza, N., Gill, R., Garrell, J., H., Gaerra, M., Ganaratne, P., Hale, S., Hamilton, K.J., Garrisl, C., Harris, K., Hart, M., Havlak, P., Hawes, A., Hernandez, J., Homsj, F., Howard, S., Homsj, T., Hornandez, J., Homsj, F., Howard, S., Homsj, T., Hornandez, J., Homsj, F., Howard, S., Hornandez, J., Hornandez, J., Homsj, F., Howard, S., Hornandez, J., Kall, J., Kal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IleLeuValThrGlu---GluValValValLeuArgGlyValAsnPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATAACACTTCCAGAAGCTCAGGAATTATTAAGAAGGGGCGTTACTTTC
Submitted (13-JUL-2002) Human Genome Sequencing Center, Dep of Molecular and Human Genetics, Baylor College of Medicine Baylor Plaza, Houston, TX 77030, USA On Jul 12, 2002 this sequence version replaced gi:19224458.
                                                                                                                                                                                                Submitted (07-MAR-2002) Human Genome Sequencing Center, Department of Molecular and Human Genetics, Baylor College of Medicine, One Baylor Plaza, Houston, TX 77030, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rattus norvegicus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Rattus norvegicus clone CH230-131G8, ***, 56 unordered pieces.
                                                                                                                   Direct Submission
                                                                                                                                                                                                                                                                                      Direct Submission
                                                                                                                                                                                                                                                                                                                 Worley, K.C.
                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   HTG; HTGS PHASE1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AC114131.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (bases 1 to 101054)
                                                                                                                                                                                                                                                                                                                                               (bases 1 to 101054)
                                                                                                                                                                            1 to 101054)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ďď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     216
                                                           Center, Depa
of Medicine,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    HTG 13-JUL-2002
IN PROGRESS
```

Ś 밁 ঠ S

5

á В δ 밁 S 밁 δ 밁 Ś 밁 र् 밁 Ś 밁 Ś

밁

```
NOTE: Estimated insert size may differ from sequence length (see http://www.hgsc.bcm.tmc.edu/docs/Genbank_draft_data.html).

NOTE: This is a 'working draft' sequence. It currently consists of 56 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence as soon as it is available and the accession number will
                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequencing vector: Plasmid;
Chemistry: Dye-terminator Big Dye: 100% of 1
Assembly program: Phrap; version 0.990329
Consensus quality: 38071 bases at least Q40
Consensus quality: 40739 bases at least Q30
Consensus quality: 43197 bases at least Q20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Center project Information
Center project name: GLNL
Center clone name: CH230-131G8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Center: Baylor College of Medicine
Center code: BCM
Web site: http://www.hgsc.bcm.tmc.edu/
Contact: hgsc-help@bcm.tmc.edu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Center: Baylor College of Medicine
                                                                                                                                                                                                                                                                                       3784: gap of
4985: contig
5085: gap of
6299: contig
6399: gap of
7416: contig
gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig gap of contig
                                                                                                           unknown
J of 1254
                                                                                                                                                                                                                                                                                                                                      unknown
of 1180
                                                                                              unknown
of 1422
                                                                                                                                                                                                                                                                         unknown
of 1233
                                                                                                                                                                                                                                                                                         of 1017
                unknown
of 1376
                                 unknown
of 1544
                                               unknown
of 1463
                                                                                                                            unknown
of 1308
                                                                                                                                                   of 1206
unknown
                                                                                                                                                                                                                          Qf.
                                                                                                                                                                                                                                         of 1021
                                                                                                                                                                                                                                                         of 1363
                                                                                                                                                                                                                                                                                                                                                                     of 1073
                                                                                                                                                                                    unknown
                                                                                                                                                                                          of 1440
                                                                                                                                                                                                   unknown
                                                                                                                                                                                                          of 1184
                                                                                                                                                                                                                                  unknown
                                                                                                                                                                                                                                                  unknown
                                                                                                                                                                                                                                                                  unknown
                                                                                                                                                                                                                                                                                                                unknown
                                                                                                                                                                                                                                                                                                                       of 1201
                                                                                                                                                                                                                                                                                                                                                              unknown
                                                                of 1511
                                                                       unknown
                                                                                       unknown
                                                                                                                                                                    unknown
                                                                                                                                                                           of 1041
                                                                                                                                                                                                                   unknown
                                                                                                                                                                                                                                                                                4 bp in real wn length
                                                                                                                                                                                                                                                                                                                                length
in length
                                                                                                           length
by in length
length
length
by in length
                                                                                                                                                                                                                                                                                                 length
in length
length
by in length
length
length
by in length
heigh
length
length
length
length
length
length
                                                              length
                                                                                              length
bp in 1
                                                                                                                                            length
bp in 1
                                                                                                                                                           bp in l
length
bp in l
length
bp in l
                                                                                                                                                                                                                                  bp in ]
length
                                                                                                                                                                                                                                         length
bp in ]
                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                         length
bp in
                                                                                                                                                                                                                                                                                                                      bp in
                                                                                                                                                                                                                                                                                                                                                                    bp in length
                                                                                                                                                           ď
                                                                                                                                                                                           Length
bp in
                                                                                                                                                                                                          ďď
                                                                                                                                                                                                            length
bp in
                                                                                                                                                                                                                          ďď
                                                                                                                                                                                                                                                                                                                                                            length
                                                                             length
bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100% of reads
                                                                                                                                                                                                                                                                       . length
                                                                                                                                                           length
                                                                                                                                                                           length
                                                                                                                                                                                           length
                                                                                                                                                                                                           length
                                                                                                                                                                                                                          length
                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                       length
                                                                                                                                                                                                                                                                                                                                                      length
                                                               length
                                                                                              length
                                                                                                                                            length
                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
         Ş
                                                                       Score:
                        US-10-034-500-2 (1-218) x AC114131
                                                                               Pred. No.:
                                                                                       Alignment
1.41e+03
90.00
42.27%
22.73%
8.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33647:
35295:
35395:
37393:
37493:
                                                                                                                                                                           79236:
79336:
81081:
81181:
                                                                                                                                                                                                                                                                                                                                                                                                                                    47830
50251
50351
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42664:
44414:
                                                                                                      84984:
86415:
86515:
90142:
90242:
94508:
                                                                                                                                                            83322
83422
                                                                                                                                                                                                                                                                                                                                 6423
                                                                                                                                                                                                                                                                                                                                                         5994
                                                                                                                                                                                                                                                                                                                                                               5984
                                                                                                                                                                                                                                                                                                                                                                        5818
                                                                                                                                                                                                                                                                                                                                                                                                     5398
                                                                                                                                                                                                                                                                                                                                                                                                               5388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           45958
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44514:
                                                                                                                                                                                                                                                   73579
                                                                                                                                                      84884
                                                                                                                                                                                                                                            73679
                                                                                                                                                                                                                                    74956:
                                                                                                                                                                                                                                                                                                                                                                                 gap of 1
                                                                                                                                                                                                                                         contig
gap of
contig
gap of
contig
gap of
contig
gap of
gap of
                                                                                                                                                                                                                                                                                                                                      contig
gap of
contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                    contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                    contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gap of contig
                                                                                                                              gap of contig
                                                                                                                                                    gap of contig gap of contig gap of contig
                                                                                                                                                                                                                  contig
gap of
contig
                                                                                                                                                                                                                                                                                                                        contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                     contic
                                                                                                                                                                                                                                                                                                                                                                                                                                                    gap
                                                                                                                                                                                            gap of
contig
gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                           conti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gap o
                                                                                                                      gap of contig
                                                                                                                                                                                                                                                                                                                                                                      gap of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gap o
                                                                                                                                                                                                                                                                                                                                                                               conti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           conti
                          (1-101054)
                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        of 1998
unknown
of 1638
                                                                                                                                                                                                                                                                                                                                                                             t unknown
g of 1443
f unknown
g of 2557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                unknown
of 1648
unknown
                                                                                                                                                                                                                                                                                unknown
of 1943
unknown
of 1815
unknown
of 1443
unknown
of 1213
                                                                                                                                                                                                                                                                                                                                               unknown
of 2249
                                                                                                                                                                                                                                                                                                                                                              unknown
of 1657
                                                                                                                                                                                                                                                                                                                                                                                                           unknown
of 1475
                                                                                                                                                                                                                                                                                                                                                                                                                                            unknown
of 2421
                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
of 1672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
of 1750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           unknown
of 1837
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          unknown
of 1396
                                        Gaps:
                                                                                                                                                                                                                                                                  unknown
of 1987
                                                                                                                      unknown
of 3627
                                                                                                                                     unknown
of 1431
                                                                                                                                                     unknown
of 1462
                                                                                                                                                                     unknown
of 2141
                                                                                                                                                                                    unknown
of 1745
                                                                                                                                                                                                  unknown
of 1978
                                                                                                                                                                                                                  unknown
of 2102
                                                                                                                                                                                                                                  unknown
of 1277
                                                                                                                                                                                                                                                  unknown
of 2386
                                                                                                      unknown
of 4266
                                                                                                                                                                                                                                                                                                                                                                                                                            of 1960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           of 1444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                    unknown
                                                                                                                                                             5 bp in 16...
wn length
in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                     length
in length
                                                                                                                                    bp in length length bp in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   length
                                                                                                      bp in length
                                                                                                                                                                                                                                            length
in length
                                                                                                                                                                                                                                                                                                                                                                                                       length
in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
bp in 1
                                                                                                                                                            bp in l
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       length
bp in length
                                                                                                                                                                                                    bp in length
                                                                                                                                                                                                                                                                                                                                                               length
bp in ]
                                                                                                                                                                                                                                                                                                                                                                               length
bp in 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                     length
bp in :
                                                                                                                                                                                                                                                                                                                                               length
bp in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                length
                                                                                                                     length
bp in length
                                                                                                                                                                                                                                                                                                                ength
op in length
                                                                                                                                                                                                                                                                                          ength
                                                                                                                                                                                                                                                                                                                                                                                                     ength
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ength
                                                                                                                                                                                                            ength
                                                                                                                                                                                                                                           ength
                                                                                                                                                                                                                                                                          ength
                                                                                                                                                                                                                                                                                                          ength
                                                                                                                                                                                                                                                                                                                                         ength
                                                                                                                                                                                                                                                                                                                                                                                                                                    ength
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ength
                                                                                                                                                                                                                                                                                                                                                                                                                              ä
                                                                                                                                                                                                                                   in length
                                                                                                                                                                                                                                                                  in length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ä
                                        101054
50
43
81
46
9
                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        length
                                                                                                                                                                                                                   length
                                                                                                                                                                                                                                                                                 length
                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                  length
                                                                                                                                                                                                                                                                                                                                length
                                                                                                                                                                                                                                                                                                                                               length
                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           length
                                                                                                      length
```

7517 8750 8850 10213 11334 11434 11428 112896 121826 15820 1

21169: 22423: 22523: 23945:

24045: 25372: 25472: 26472: 26983: 27083: 27083: 28546: 28546: 38646: 31666: 31766: 31766:

20

11433 12995 14279 14279 14279 15719 15819 15860 16860 16960 16966 18266 18266 18266 18266

contig gap of contig gap of

as soon as it be preserved

1074 1174

contig gap of contig contig gap of

2405 2505 3685 3785 4986

8849: 10212:

gap of contig gap of

Jackson, D., Jones, L.M., Kaerst, U., Kreft, J., Kahn, M., Kunst, F., Kurapkat, G., Madueno, E., Maitournam, A., Vicente, J.M., Ng, E., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Perez-Diaz, J.C., Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Vose, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Vose, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, B., Vose, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., de Pablos, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., Land, Movella, S., Land, H., Wehland, J. and Cossart, P. Nedjari, H., Mordsiek, G., Movella, S., Land, H., Wehland, J., Moreta, J., More	RESULT 37 AL591983/c AL591983/c AL591983/c AL591983/c AL591983 AL591983 DEFINITION AL591983 AL591924 VERSION AL591983.1 GI:16411809 KEYMORDS SOURCE ORGANISM Listeria monocytogenes. Bacteria; Firmicutes; Bacillales; Listeriaceae; Listeria. REFERENCE AUTHORS Glaser, P., Frangeul, L., Buchrieser, C., Rusnick, C., Amend, A., Baquero, F., Berche, P., Bloecker, H., Brandt, P., Chakraborty, T., Chatouani, F., Couve, E., de Darwar, A., Dehoux, P., Domann, E., Dominguez-Bernal, G., Duchaud, E., Durant, L., Gautier, L., Gechel W. Gomez, Loner, N. Hain T. Hayf, T. Gerrido, P., Garrido, P., Garr	Qy 129 u	Db 53427 GGACCAAGATTCAGTGCCATGCTCTATTCATTCTCCATATTCTCCC	ATGTACCAGGTTGCATCAGTTGTCCTCACCC
/ CUMUIT SCRICT. // CUMUIT SCRICT. // CHANGE SCR	/db_xref="G1:08'44V7" /db_xref="G1:08'44V7" /translation="MFPKEMBL:.08'44V7" /translation="MFPKSTSATAAMQVLAETRTQKELAIDSYVTPALISNQIKGKT VSLEQAEQLIDSYMEPKSTYTLFAHEFSNGMIPPLFDGLDNHHASLTWRFELEVEEAMN TLKNGLETMTFNLRKGDMLQREAAKQAISEITDVVASALTLNASIAIAFNIDLQQVLN RRDLYYQKSGLVRSGK"  gene 'lmo2322" RBS complement(810815) /gene="lmo2322" RBS complement(14401345) /gene="lmo2323" gene complement(14542230) /gene="lmo2324" CDS complement(14542230) /gene="lmo2324" /codon atstrict o anti-repressor [Bacteriophage A118]" /codon atstrict o anti-repressor [Bacteriophage A118]"	// // // // // // // // // // // // //		Cedex 15, FRANCE  COMMENT E-mail: pglaser@pasteur.fr  Phone: +33 1 45 68 89 96, Fax: +33 (0)1 45 68 87 86.  FEATURES Location/Qualifiers  Source 1324050  forganism="Listeria monocytogenes"  /strain="EGD-e" /db xref="taxon:1639" /db xref="lmc321"  gene complement(290492) /gene="lmc321"  CDS complement(290478)

```
gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    gene
                                                                                                                                                                                                              SdS
                                                                                                                                                                                                                                              RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SdC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RBS
                                                                                                                                                                                                                                                                                                               RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          /protein id-"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /protein id="CAD00405.1"
/db_xref="G1:16411816"
/db_xref="SPTREMBL:Q84V3"
/db_xref="SPTREMBL:Q84V3"
/translation="MMRRYLSNKRSEQKDCVFKTKDIPENLKSLNIKMOGDRNCCYG
VLEINGKQLRKGITAVKLDLKAGSLPVVQVEYHPFTISEEMQRLIWSGKY"
complement (3092. .3097)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     /db_xref="SPTREMBL:Q8Y4V4"
/translation="MNNIKQAIIKLETILENGNAIESGSFVKYSVIKNILSLLEKDQE
LKIIEMKVELNGVEDSIENATLLEKRLIEAKSLVEDLASTINSLEIKVK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /gene="lmo2324"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /protein id="CAD00403.1"
/db xref="GI:16411814"
/db xref="GI:SPTREMBL:08Y4V5"
/db xref="SPTREMBL:08Y4V5"
/translation="MIFTVNSFPQSGHVFTPGLTVNTCEHSGQLPSVPFLIISCFAIF
RLCSLICLSNFFESNLILTFILPTSLHKNYSTVKGRTERRTKCQIYK"
                                                                                                                                                                                                                                                                                                                                      /codon_start=1
/trans1_table=1
/protein_id="CAD00406.1"
/protein_id="CAD00406.1"
/db_xref="GI:16411817"
/db_xref="SPTREMBL:Q8Y4V2"
/translation="WRIWLKKIREENCLTQQDVAELADVERTTYASIEQGRRNPSVVN
                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (3287. .3529)
/gene="lmo2328"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           complement (3287. .3540)
/gene="lmo2328"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       complement (2800.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (2782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (2498.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      complement (2498. .2503)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  complement (2493. .2774)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     complement (join (2493.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   complement (2236. .2241)
/gene="1mo2324"
                                EEINITDAASKGDKEVNEFVDENEDFKAVAARIMSDAEAVKAVKSFIEFYEQQKNN"
                                                                                                                                                                                                                                                                                                             comp
                                                                                                                                                                                                                                                                                                                              AMRIASVLDFEWTIFFDDKVREKSHFYLNEKQEARK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         complement (2800.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /gene="lmo2327"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          'gene="lmo2327"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="lmo2327"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="lmo2326"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="lmo2325"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       /gene="lmo2325"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="similar to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="lmo2326"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    'gene="lmo2326"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transl_table=11
                                               /db_xref="SPTREMBL:Q8Y4V1"
/translation="MFGDILMKLRKNKNLTQSDIAKILGVARTTYSSYEQNRRMPDAE
IQIKIADYFDVSLDYLHGRGKNNIADTIAAHIDSNASEEDIKEILAYIEEKRKEHVNE
                                                                                           /transl_table=11
/protein_id="CAD00407.1"
/db_xref="GI:16411818"
                                                                                                                                                                                               /gene="lmo2329"
                                                                                                                                                                                                                                                                                                                                                                                                                                            note="similar to transcription regulator"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            codon start=
                                                                                                                                                        note="similar to a
Bacteriophage Ali8]
                                                                                                                                            codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      otein_id="CAD00404.1"
_xref="GI:16411815"
                                                                                                                                                                                                                                                                                                             .ement(3535.
                                                                                                                                                                                                                                                                             .4161
                                                                                                                                                                                                                .4161
                                                                                                                                                                                                                                                .3677
                                                                                                                                                                                                                               _mo2329"
                                                                                                                                                                                                                                                                                            .mo2328"
                                                                                                                                                                                                                                                             mo2329"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3084)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .3097)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .2787)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        .2503)
                                                                                                                                                                                                                                                                                                               .3540)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein
                                                                                                                                                                  putative repressor protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       .2774,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     gp41 [Bacteriophage Al18]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ,2782.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .2787))
                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                              Ş
                                                                                                뭉
                                                                                                                                                               밁
                                                                                                                                                                                             S
                                                                                                                                                                                                                               맑
                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                              В
                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                            S
Ş
                                 밁
                                                                                                                              ş
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x AL591983 (1-324050)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              121361 AACGGAAAATCAATGATGCGCCAAATGGCAATGGATTATCCGGAA----
                                                                                                                                                                                                                                                                121136
                                                                                                                                                                                                                                                                                                                                          121193
                                                                                                                                                                                                                                                                                                                                                                                                                     121208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             121268
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        121316
                                                                                                                                                                                      121076
                                   120971 AACGGTGGAGAAATGCGTGACATCAGTGTTTCTGAAGACTTTGCAAATGAAAAAGTTTCC 120912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sgo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RBS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No::
                                                                                                                                                  146
                                                                                                                                                                                                                           126
                                                                                                                                                                                                                                                                                                     111
164 IleAsp---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         41
                                                                                                                                                                                                                                                                                                                                                                                92
                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln---GlyGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                                                                                                                                                                      TAC---CAACTTGGTCAAAACGTCGGAAACGATTTAAAATCCTAT-----GAT 121032
                                                                                                                                                                                                                         HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                              GATACGCTTCCTGTATTTGCAAAAGCTGGAGCAATTATTCCGATGAATATGACAGATGGA
                                                                                                                                                                                                                                                                                                   AsnGlnMetPro-----ProGlnAlaAlaValIleLeu-----LeuThrAspGly 125
                                                                                                                                                                                                                                                                                                                                          ATCTGGAACGGTGGGGTTCACCCTGGTGGCGAAACAATTTCTTATTATGCCGATGTA---
                                                                                                                                                                                                                                                                                                                                                                            ilePhe---GlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIle 110
                                                                                                                                                                                                                                                                                                                                                                                                                     GGCGAATGG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------GATGTCAATGCACGTGATTTGGATGAGCAGTATATGTTTGGTGACGAT 121269
                                                                          GluGly--
                                                                                                             AATTTAACTTTCCGAGTTTATCCATCTGGAGATAGTGAGTATAGCTTCTATGACGATGTA 120972
                                                                                                                                                AsnValCysPheHisVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGlu 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TyrThrPheAlaProTyr---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gene="lmo2330"
4542..5242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    /db_xref="Sptrembl:Q8Y4V0"
/tranblation="WSKYSYLLKKWWFWILLLLIILSLFNGIWVLLFFATLATLTFAI
IKVIKNENRRKYTLIIIATTTVLLTFSLIRTVQLYNYIVENPEENVTIDNQKKOTKED
AETDEVGETEETDQADASAAYTVTQEGIESFNESINRLISESNGILIKVVPFENEYDM
LIAYVTQDLKYQDETIKQKNADYLGNEIQQRALGTLFGGDSNHRPMVELRYEDETKMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GSSAFDKTNMKLTGK"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         /protein_id="CAD00409.1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /transl_table=11
/protein_id="CAD00408.1"
/db_xref="GI:16411819"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1542. .5243
/gene="1mo2330"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               'note="similar to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                codon_start=1
transl_table=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       gene="lmo2331"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gene="lmo2331"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     codon_start=1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gene="lmo2331"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     note="weakly similar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5.86e+03
90.00
36.47%
21.96%
8.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .5944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              _table=11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         protein gp33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    to gp32_Bacteriophage Al18 protein"
                                                                                                                                                    ----ValSerPheAlaAspAspAla
 -GlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             [Bacteriophage A118]"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ServalileIleProGln 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              324050
56
37
74
88
15
                                                                            LysAlaIle 163
                                                                                                                                                                                                                                                                                                                                                                                                                       -GTTGAT
                                                                                                                                                    158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               59
                                                                                                                                                                                                                                                                                                                                            121137
                                                                                                                                                                                                                                                                                                                                                                                                                       121194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121317
                                                                                                                                                                                                                                                                    121077
```

Score:

```
REMARK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOURCE
ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACCESSION
VERSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                       FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Db 120731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      BC004727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   120791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             120911
                                                                                                                                       CDS
                                                                                                                                                                                                                                                                                                                                                              Bource
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         :::|||
GTAGATCTTCCAGCAATGGCAGATGAAACAACTATGCAAGTTTTCAGTACGGAACCAACA 120852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAGATGCCAAACAAGCAATCGTACTAAATGGTGTAAACCATGCA 120687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LeuValThrGluGluValValValLeuArgGlyValAsnPheAla 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerValLeuValAspGlyLeuGlnLeuLeuGln------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAACAACTGGTTACTACTATGATACTGTACAAAACTTAACATATGTAAAAGCAGCAGCA 120732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaValCysGlnGluPheValAsnSerVal------PheCysGlnGluGlnIle 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTGTAACAATTGACGGGGCAGATGTAGCTAAAGCAGATACATTAGATGCATTTAACGAA 120792
                                                                                                                                                                                                                                                                                                                                                                                                     Clone distribution: MGC clone distribution information can be found through the I.M.A.G.E. Consortium/LLNL at: http://image.llnl.gov Series: IRAK Plate: 9 Row: d Column: 16
This clone was selected for full length sequencing because it passed the following selection criteria: Similarity but not identity to protein.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tissue Procurement: Gilbert Smith, Ph.D.

CDNA Library Preparation: Life Technologies, Inc.

cDNA Library Arrayed by: The I.M.A.G.E. Consortium (LLNL)

DNA Sequencing by: Baylor College of Medicine Human Genome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (21-MAR-2001) National Institutes of Health, Mammalian Gene Collection (MGC), Cancer Genomics Office, National Cancer Institute, 31 Center Drive, Room 11A03, Bethesda, MD 20892-2590,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              rus musculus, Similar to loss of heterozygosity, 11, chromosomal region 2, gene A, clone MGC:6690 IMAGE:3582797, mRNA, complete cds. BC004727
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Contact: amg@bcm.tmc.edu
Gunaratne, P.H., Garcia, A.M., Lu,
Yoon, V.S., Kowis, C.R., Lawrence,
Richards, S., Gibbs, R.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          BC004727 2394 bp Mus musculus, Similar to loss of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Web site: http://www.hgsc.bcm.tmc.edu/cdna/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Center code: BCM-HGSC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequencing Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Email: cgapbs-r@mail.nih.gov
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NIH-MGC Project URL: http://mgc.nci.nih.gov
Contact: MGC help desk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Strausberg,R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mus musculus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BC004727.1 GI:13435731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 louse mouse.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (bases 1 to 2394)
                       chromosomal region 2, gene
/protein_id="AAH04727.1"
/db_xref="GI:13435732"
                                                                                                                                     /note="Vector: pCMV-SPORT6" 347. .1681
                                                                                                                                                                                                                             model.
                                                                                                                                                                                                                                                                                                                                                                                Location/Qualifiers
                                                                                    /codon_start=1
/product="Similar to loss of heterozygosity,
                                                                                                                                                                               /tissue_type="Mammary tumor. Metal
nodel. I0 month old virgin mouse.
/clone_lib="NCI_CGAP_Mam1"
/lab_host="DH10B"
translation="MEDAVKRVKALKANLGGTEILTPLCNIYKASSIPGHPLQLFVFT"
                                                                                                                                                                                                                                                                     clone="MGC:6690 IMAGE:3582797"
                                                                                                                                                                                                                                                                                               map="FVB/N"
                                                                                                                                                                                                                                                                                                                                      organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                 xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    s ;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               mRNA
                                                                                                                                                                                                                      Metallothionien-TGF alpha ouse. Taken by biopsy."
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hulyk, s
Martin,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----AsnPro 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3.W., Hale,
R.G., Muzny
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ROD 07-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Muzny,
                                                                                        11,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       တ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       οż
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mus.
```

```
VERSION
KEYWORDS
                                                                                                                                                                                                                                             RESULT 39
AL672070
                                                                                          SOURCE
                                                                                                                                                                                                     DEFINITION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x BC004727 (1-2394)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ORIGIN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BASE COUNT
                                                                                                                                                         ACCESSION
                                                                   ORGANISM
                                                                                                                                                                                                                                                                                                                  614
                                                                                                                                                                                                                                                                                                                                                               173
                                                                                                                                                                                                                                                                                                                                                                                                           554
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       455
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             401
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ŋ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                                                                                                                                                                                                                                                                                                                        TTTGGAATTGGACAAGGAGCCTCGACCAGTTTAATCAAAAATATCGCCCGGGTATCAGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAAATCTTGACACCCCTCTGCAACATTTACAAG-----GCATCCTCCATTCCTGGTCAT 454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMet 113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAAGTATGGACTCCCCCATGAGCACAGAGAACAATTCTCAGCTACGCATCGAGGCTGCC 226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlySerMet-----MetMetLysHisValAlaValArgGluProLysIleGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAAGTGGAAGCCTCA-----AAGGCCTGTGGAGAATTTGTGTTTCTCATGGACCGTTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSer
                                                                                                                                                                                                                                                                                                                  GGTACTGCAGTGTTTATCACAGGCAAGGACAGGATGCAGACCAAGGCTCTT
                                                                                                                                                                                                                                                                                                                                                            Gly---SerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaVal 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATTAGAGAAGTTAAG-----TTAAACAGCAAGAAACACAGATGTTTC-----TCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CCCCTACAG-----CTCTTTGTCTTCACGGATGGAGAAGTGAGTGACACATTTAGTGTC 508
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGAGGACGCAGTGAAAAGA-----GTGAAGGCTTTAAAAGCCAACTTAGGGGGTACT 400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGATTTGGATCTTCCTATGAGAAATTCTTTCCGGAGAGTGTGAAGTACACTCAGGATACA 346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---GlnGlyGlyLeuTyr---ThrPheAlaProTyrSerValIleIleProGlnGlySer 73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                PheAla---AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePhe 93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGGAAACTCTGTTGCTGTTGCTGAAGAGTTTGCCTATGGGTTGTTATTTTAATATCTAT 286
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus 1 (bases 1 to 197912)
                                                                 Mus musculus
                                                                                                                                                                                                     Mouse DNA
                                                                                                                                    AL672070.12
                                                                                                                                                                                                                          AL672070
                                                                                          house mouse
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DGEVSDTFSVIREVKLNSKKHRCFSFGIGQGASTSLIKNIARVSGGTAVFITGKDRMQ
TKALGSLKFALQCAVDNISLSWDLPFGLSVKMLSPEQLTIFRGRGRLIYVAQLTGLMPQ
VESTGAVCLKHILQGRSLEBRVTFSLQPKANDNFTIHRLAKSLIQTKDFGSQEASKE
EKEDVNNISLGGGVLSSFTAFIAINKELNKPVQGFLAHRVIPRPVMAGSSMRFYSSF
SGGFKGPQPRSLRVPAYDLCSAESANLVLKKSACSAIQKKKTNSSTNKSNLKKEHKAF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HANGTDLKCEWELLERKAVAWLHDHAGSSIPMLVQAANSLLKLSVNPAVFGV"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENAVVQLI SLQKANGSWELDEDLTKI LGTKSKDI KAANPAKHEDPSAWATVLAVVWL
                                                                                                                                                                                                   sequence from clone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       16.5
89.50
43.65%
27.92%
8.00%
                                                                                                                                    GI:20339183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          518
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       a
                                                                                                                                                                                       אאט טאר בו 197912 אייה
ייי clone RP23-115A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     542 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          644 t
                                                                                                                                                                                                     o
B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2394
55
31
88
23
                                                                                                                                                                                                                          linear
                                                                                                                                                                                                   chromosome 9, complete
                                                                                                                                                                                                                                                                                                                  664
                                                                                                                                                                                                                          ROD 29-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                           613
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 553
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            21
```

밁 Ś 밁 Ś 밁 á 밁 Ś 문 S 밁 S 밁 á 밁 á 밁 Ś 밁 S

FOCUS

REFERENCE

```
В
                                                                                                                                                                                                              묽
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                              á
                                                                                                    밁
                                                                                                                                                        S
                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMMENT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x AL672070 (1-197912)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BASE COUNT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 JOURNAL
83505 CCCAGCCAGTTCCCCTGTCACGCAGGCACGGCAGCTCTCTGGCTCAGGGTGGAACACCTG 83564
                                                                                                         83446
                                                                                                                                                                                                                                                                                                                        83326
                                                                                                                                                                                                           83386 CAGATCAAAGTGAGCACTGTCTCCCATCTCTCACACAGAGAAGGCATCCTGACTATC 83445
                                                                                                                                                                                                                                                                                                                                                                                                                          83290
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              source
                                                                                                                                                                                                                                                               43
                                                                                                                                                          63
                                                   78
                                                                                                                                                                                                                                                                                                                                                                      26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             σ
                                                                                                                                                                                                                                                                                                                CACACCCACCCTCACATCCTGTAACCCTGGATTCAACTTACTCTGGATCTGGACCTTCTCT 83385
                                              ValAlaGlu-----CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                    TGTCTGGACAGGCCGTTTCCTTGGACACCCCTGCTAAC-AAATCCACAACCTCCCCATGC 83504
                                                                                                                                                                                                                                                          IleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPhe 62
                                                                                                                                                                                                                                                                                                                                                                      MetLysHisValAlaValArgGluProLysIleGluLeuAlaLysGlu------Ala 42
                                                                                                                                                                                                                                                                                                                                                                                                                          SerCysThrLysArqValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMet 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  corresponding to the overlapping clone, as we submit sequences with only a small overlap as described above.

This sequence was finished as follows unless otherwise noted: all regions were either double-stranded or sequenced with an alternate chemistry or covered by high quality data (i.e., phred quality >= 30); an attempt was made to resolve all sequencing problems, such as compressions and repeats; all regions were covered by at least one plasmid subclone or more than one M13 subclone; and the assembly was confirmed by restriction digest. The following abbreviations are used to associate primary accession numbers given in the feature table with their source databases: Em:, EMBL; Sw:, SWISSPROT; Tr:, TREMBL; Wp:, WORMPEP; Information on the WORMPEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Cambridgeshire, CB10 1SA, UK. E-mail enquiries:
humquery@sanger.ac.uk Clone requests: clonerequest@sanger.ac.uk
On Apr 29, 2002 this sequence version replaced gi:20338531.
During sequence assembly data is compared from overlapping clones.
Where differences are found these are annotated as variations
together with a note of the overlapping clone name. Note that the
variation annotation may not be found in the sequence submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           http://www.sanger.ac.uk/Projects/C_elegans/wormpep RP23-115A1 is from the RPCI-23 Mouse PAC Library constructed by the group of Pieter de Jong.
For further details see http://www.chori.org/bacpac/home.htm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Submitted (29-JUN-2002) Wellcome Trust Sanger Institute, Hinxton,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Center: UK Medical Research Council
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Direct
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Web site: http://mrcseq.har.mrc.ac.uk
Contact: mouseq@har.mrc.ac.uk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Center code: UK-MRC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        VECTOR: pBACe3.6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       database can be found at
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    54511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            /clone_lib="RPCI-23"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  /chromosome="9"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 organism="Mus musculus"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    clone="RP23-115A1"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        db_xref="taxon:10090"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    47510 c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3.61e+03
89.50
41.56%
23.81%
8.00%
                                                                                                                                                        --ProTyrSerValllelleProGlnGlySerTrpAsnSerCys 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genome Center
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    46863 g 49028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          197912
55
41
91
91
46
                                                95
```

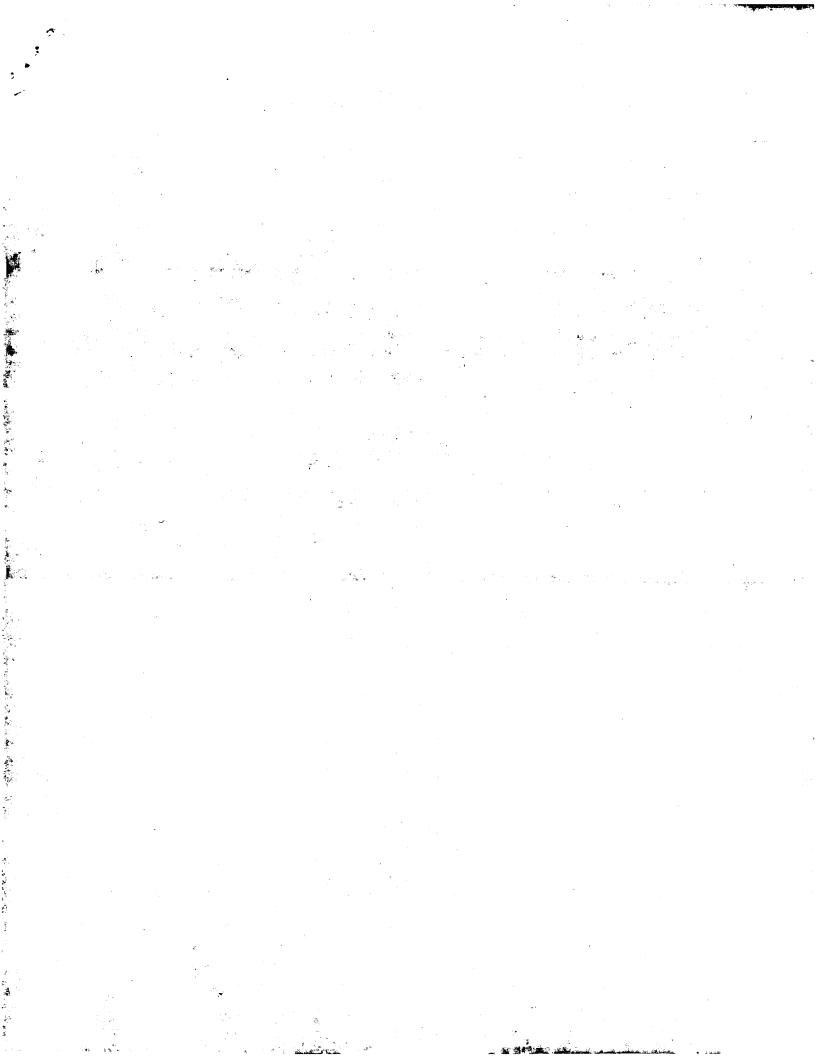
4

```
JOURNAL
REFERENCE
AUTHORS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE
AUTHORS
TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             VERSION
KEYWORDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DEFINITION
ACCESSION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOURCE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AF224491
                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORGANISM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        JOURNAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83891
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               83849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                83678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83624
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    83565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        83789 AAAGATAAAATAAAACAAACAAACAAAAGCCCTCTAATTGTCTATAAAATGAAATTACAA 83848
                                                                                                                                                                                                                                                                                                                                    CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                source
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             183
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      164 IleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeu---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlnIleLeuValThrGluGluValValValLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAAGAAGATGAAGCTCTAGGTGTCTTGCTAACA-----CACAACTCCACAGGCACAAGC 83677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---LeuGlnAsnProAla---ValCysGlnGluPheValAsnSerValPheCysGlnGlu 200
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGGAGTCTCTTTTTTCCAGTTACCCACGAAGCACTCCAAAC------CCCATTATC 83728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MetProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        LeuThrProValGlyAspGlyIleLysMet-----HisGluThrValIleAspGln 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AATTACCAGAAACCCATTTAAGTTTGTAAG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TCCAAATACCTTGCCCACTGACCACAAGATTTCAGCATCCTGAAAGAAGCCAAGGGGAGG 83788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTTGTTCCAGG-GGAAGTGGGCTGACTTTTAATCTTTCCCATCATCAGGACAGGAACAGT 83623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAGATTTTAATTCTGAGCTTCCTGGAAGTTTTG 83923
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Halocynthia roretzi
Eukaryota; Metazoa; Chordata; Urochordata; Ascidiacea;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Halocynthia roretzi complement
AF224491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Submitted (13-JAN-2000) Department of Biological Sciences, Graduate School of Science, University of Tokyo, 7-3-1 Hongo, Tokyo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ji,X., Namikawa-Yamada,C., Nakanishi,M., Sasaki,M. and Nonaka, 
Unique domain structure of ascidian complement factor B: Trace
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AF224491.1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Unpublished
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Stolidobranchia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Halocynthia roretzi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Direct Submission
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ji, X., Namikawa-Yamada, C., Nakanishi, M., Sasaki, M. and Nonaka, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AF224491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (bases 1 to 3429)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (bases 1 to 3429)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         shuffling
                     /translation="MKLAVIFLCNVLIPVYVYGQNSCNSPLRFTCKDDTCIPLVRKCD
GNDDCPDGEDELECTGSKAVCKACATCALNGYSELGYRCKSKCIPRRIFCSGANKICI
CDQECGYSCIPHHSLCRGEVPLVENSYGHEIIFDENHYKKLRRDEIPKYGDLVRYK
CRRGTRLVGPLDRCNGKKQWSNENPQCVDATCRGTPFLVRGWKSYVTRNDRRISGYP
IYGDKVKYICPQDHLLIGEAPMCTKHRTWSEDRQQCIVPCFKRDSESAFVAGIACGPN
CITSADCDGRLICHCDLDCGRACVDKNITCGAAPTIQLANTYTGYGAGQLARTYCEE
GYYMLGGRVLLQCSGSGKMSGRLSTCIMAKCGNEDRSIEFTSGRVSLSNRNWYGSVBE
ESCPSNYRMLGFPTRVCMENGGMSGGLLTVCDLKDNVILCPDPGVPINGERIGKIFT
IGATVIFECHNGYVLVGEAEITCLYFKQWSDNPPLCVDPAYHSSKSDIARTLKKSLSN
IGATVIFECHNGYVLVGEAEITCLYFKQWSDNPPLCVDPAYHSSKSDIARTLKKSLSN
LPDQSLTISRTISASEVNIFHYVIFIFDVSKSVTKKYQDFSSGIEFAKRLIDRLKNFG
                                                                                                                                                                                                                                   /codon_start=1
/product="complement factor
/protein_id="AAK00631.1"
/db_xref="GI:12655866"
                                                                                                                                                                                                                                                                                                                                                                                  /organism="Halocynthia roretzi"
/db_xref="taxon:7729"
                                                                                                                                                                                                                                                                                                                                       /tissue_type="hepatopancreas"
?3...3277
                                                                                                                                                                                                                                                                                                                                                                                                                                                      location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GI:12655865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Pyuridae;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ------pheAlaAspAspAlaGluGlyLysAlaIle 163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3429 bp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Halocynthia.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 p mRNA linear INV 02-
factor B mRNA, complete cds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sasaki, M. and Nonaka, M.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              INV 02-FEB-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      얁
```

IEFYSISAQEDPSPEAFEELIGLASEPENYIYIEDIHLLSSYLDKVTDVK5DFSKCGQ
AGEVGLKHMALKRVVGGEESVENAMPMQALITKKASTIK KDIYILDGNQLGGGSLINDQ
WVLTAAHLFDRLKGGEDNWHESVLVHLGISIKPTSEDDMISSIRMYIFGEIIHPRYD
KNTLKNDVTLILLGKEYHRNMYSTYIERISYTFYIR PVCLPCNNSCLKESQLTDNDGK
SLTGPGQDRCDIEKILLENNAKVVATGFGDTSRKNEPDPRKKNIKLSKKLJQQALLKI
DDQSCQDAIKYINEKQRIKYSYNTTLECCLDHDNGVDTCQGDSGGPVVREVLNQTS
GVSCWQGIGLVSFGWGCGALRDDVHAYVPGFYTNVIKYIPWIKRKTNMTDEAKL"
a 623 c 812 g 906 t

Percent Similarity:
Best Local Similarity:
Query Match:
DB: Ś 문 δ 밁 Ś 片 Ś 밁 S 문 S 밁 8 밁 ঠ 밁 S 밁 ફ 밁 ફ US-10-034-500-2 (1-218) x AF224491 (1-3429) Alignment Scores: BASE COUNT ORIGIN 1781 1733 1673 1628 GATGTTTCAAAAAGCGTGACAAAGAAATACCAAGATTTTAGT------AGT 1672 2132 1961 2075 2021 1694 TTGATA-----GATAGGTTGAAAAATTTTGGTGGAGTATTGAAA 1732 1901 AAAGCTTTGAAAAGCTTGCGAGACATGATGTTATTCATGGAACATGACATTAGAAATGAT 1960 1841 CAGGTTÄÄÄGAGGCTGTTTCCGAACTCATAGAAGAGACAAGGAGTGGTACGGCAACTGCA 1900 No.: 112 149 132 105 102 82 62 42 AlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThr 61 22 GlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLysGlu 41 GlnMetProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMet 131 ACAGATCGCTTTTCGACGAATGTTAAAGAGGTTATTAAACGTCTAGATAACCTGGATTCG 1840 GGACTTGCTTCTGAGCCTGAAAATTATATTTACATCGAGGACATTCATCTTCTCAGTTCT 2191 AlaLeuAsnSer-----GlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn 185 PheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal 168 AATCCTGTTGAAGTTCGAAAAGAAATGCAAAAGATATTT-----GGCTCTAATATAGAG 2074 AsnProValGlu-----GluValLysSerIleTyrGlnThrAsnProAsnValCys 148 CAGACAAATGACAAGTGCCATGTTTTCTTGTTTACTGACGGAATGCACAATGAAGGAAAG 2020 GlyIleLys----- 104 AlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAsp 101 PheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCys 81 TTTTACAGTATTTCAGCACAAGAAGATCCAAGTCCGGAGGCA---TTTGAAGAACTGATC 2131 1088 ည 28.8 89.00 37.27% 20.91% 7.95% 623 c -----MetHisGluThrValIleAsn 1:1 812 g Indels: Gaps: Length: Matches: Conservative: Mismatches: -----ATTGAATTTGCGAAAAGG 1693 906 € 3429 46 36 70 68

Search completed: April 8, 2003, 05:46:57 Job time : 2581 secs



Und

Apr

10 10:22:41 2003

```
Command line parameters:

-MODEL-frame+ pln.model -DEV=xlh
-Q=/cgn2_1/USPTO spool/US10034500/runat_02042003_092744_19692/app_query.fasta_1.391
-Q=/cgn2_1/USPTO spool/US10034500/runat_02042003_092744_19692/app_query.fasta_1.391
-DB=N Geneseq_10102 -OPMT=fastap -SUFFIX=rng -MINMAYCH=0.1 -LOOPCL=0
-DB=N Geneseq_10102 -OPMT=fastap -SUFFIX=rng -MINMAYCH=0.1 -LOOPCL=0
-LOOPEXT=0 -UNITS=bite -START=1 -END=-1 -MATRIX=blosum62 -TRANS=human40.cdi
-LIST=45 -DOCALIGN=200 -THR SCORE=pct -THR MAX=100 -THR MIN=0 -ALIGN=40
-MODEL-CAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=2000000000
-MODE-LOOPEXT=0 -OVERH=EXT -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=20000000000
-MODE-LOOPEXT=0 -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=20000000000
-MODE-LOOPEXT=0 -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=20000000000
-MODE-LOOPEXT=0 -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=20000000000
-MODEL-CAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MAIT -LONGLOG -DEV TIMEOUT=120
-WARN TIMEOUT=30 -THREADS=1 -XGAPOPD=10 -XGAPEXT=0.5 -FGAPEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Total number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            YGAPOP=10 -YGAPEXT=0.5 -DELOP=6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             protein -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     贸
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          geq
geq
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Xgapop 10.0 , y
Ygapop 10.0 , y
Fgapop 6.0 , E
Delop 6.0 , E
                                   2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

2005

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N_Geneseq_101002:*
1: /SIDS2/gcgdata,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2185239 seqs, 1125999159 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1981.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1981.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1983.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1985.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1987.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1989.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA1999.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2000.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2001A.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2001A.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2001A.DAT: *
| SIDS2/gcgdata/geneseq/geneseqn-emb1/NA2001A.DAT: *
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AEVTASCTKRVESYNYLVDY.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Copyright
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8, 2003, 03:50:09; Search time 215 Seconds (without alignments) 2283.422 Million cell updates/sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        /gcgdata/geneseq/geneseqn-emb1/NA1980.DAT:*
/gcgdata/geneseq/geneseqn-emb1/NA1981.DAT:*
/gcgdata/geneseq/geneseqn-emb1/NA1982.DAT:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GenCore version 5.1.4 p5 4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Xgapext
Ygapext
Fgapext
Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0.5
0.5
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         .QEQILVTEEVVVLRGVNFAF 218
```

a

```
Pred. No. is the number of results predicted by chance to have score greater than or equal to the score of the result being puand is derived by analysis of the total score distribution.
```

## Result Score 90 87.5 87 91.5 91.5 91.5 91.5 91.5 91.5 90.5 Query Match 3 1728 3 910715 7 3667 7 3685 7 88421 7 3011208 5 6292 6 6317 1380 1433 2944528 2958 2961 Length 3195 3199 3265 3265 3265 3265 37716 В 224 220 220 220 231 IJ ABL41969 ABL41970 AAX61746 AAH00718 AAX61745 AAX20248 AAS92979 AAI71344 AAI71343 AAD35923 AAD35925 ABK75142 AAH98375 AAF08436 AAC49068 AAF30188 AAI58451 AAA52180 AAA52179 AAF44241 AAS59553 ABA91323 ABA09217 AAD38694 AAI60237 AAS46053 AAZ65095 SUMMARIES Propionibacterium A. nidulans NADP-d Aspergillus nidula Listeria monocytog DNA sequence of H4 DNA sequence of nH B. burgdorferi ant Borrelia burgdorfe Bovine brain clone N. meningitidis pa Neisseria meningit Human ReproSA-1 co Arabidopsis thalia cDNA clone encodin cDNA clone encodin DNA encoding novel DNA encoding H. in Haemophilus influe 8842Int genomic DN Listeria innocua D X. oryzae avrRxo1 Description cDNA encoding a hu cDNA clone encodin Human polynucleoti Human LP217 secret Clone 21433858 enc B. burgdorferi ant Borrelia burgdorfe Human DNA encoding Human PRO1124 cDNA Human PRO1124 (UNQ Membrane-bound pro Bacillus lichenifo Nucleic acid seque Human membrane-bou Human e 2516888 of a n CS193 full l n CS193 consen n colon specif polynucleoti polynucleoti EST-derived polynucleoti

## ALIGNMENTS

```
RESULT 1
ABK751V
ID ABK7
XX
AC ABK7
XX
AC ABK7
XX
DT 13-A
XX
DT 13-A
DT ABC1
XX
DT Baci
XX
DY BACI
XX
DY WO20
XX
                                                                                        Differential gene expression; genomic sequenced tag; GST; altered culture condition; environmental stress; physiological provocation; ds.
                                                                                                                                                                   Bacillus licheniformis genomic sequence tag (GST) #2433.
                                                                                                                                                                                                      13-AUG-2002 (first entry)
                     WO200229113-A2
                                                       Bacillus licheniformis.
                                                                                                                                                                                                                                                                               ABK75142 standard; DNA;
                                                                                                                                                                                                                                                                               687 BP
```

```
밁
                                                                                                              Ś
                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                     Ś
문
                                S
                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                      Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The invention describes a method of monitoring differential expression of cyenes in a first Bacillus cell relative to expression of the genes in cother Bacillus cells, comprising hybridising labelled nucleic acid probes isolated from Bacillus cells to a substrate containing array of Bacillus cells to a substrate containing array of Bacillus celes (GST), examining the array, and determining crelative gene expression by an observed hybridisation reporter signal of comprising to the array. The method is useful for measuring the expression of comprise second Bacillus cells. The method is useful for monitoring composed in one or more second Bacillus cells. The method is useful for monitoring composed composed cells. The method is useful for monitoring composed cells in cells. The method is cell discovering new composed cells in cells in the cell discovering new composed cells. The method is cell discovering new composed cells in cells cells of unknown open reading frames and composed cells adapt to changes in culture conditions, cells adapt to changes in culture conditions. Extensive convironmental stress or other physiological provocation. Extensive convironmental stress or other physiological provocation is convertion. Convertion is unnecessary, when one spot on an array cells available. This sequence represents a genomic sequence information is available. This sequence are presents a genomic sequence tag (GST) used in the method of the invention.
                                                                                                                                                                                                                                                                                                             US-10-034-500-2 (1-218) x ABK75142 (1-687)
                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Claim 4; SEQ ID NO 2433; 200pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sequenced tag array
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Monitoring differential expression of several genes in first Bacillus cell relative to expression of same genes in one or more second Bacillus cells, by using substrate containing Bacillus genomic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2002-416684/44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Berka
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (NOVO)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      06-OCT-2000;
27-MAR-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               05-OCT-2001;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      11-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                    No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ftp.wipo.int/pub/published_pct_sequences
298
                                                                           238
                                                                                                                                                      178
                                                                                                                                                                                                                                  124
                                                                                                                                                                                           37
                                                                                                                                                                                                                                                                           17
                                    83
                                                                                                                50
                                                                                                                                                                                                                                  ATGCTTGATGCAAGCGCAGCATGGCTAAAAAGATCGGCGGGGTC-----TCAAAATAC 177
                                                                                                                                                                                                                                                                         LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scores:
GCAATCAGAGGGGTGTACGGCTTCCAAACGTATGAC--
                                                                           ATGAGAGTTTTCGGTTCAGAGGGAAACAATAAAAATTCCGGAAAAGTGCAGTCCTGCAAT
                                                                                                                MetProLysMetSerTyrGlnGly-----
                                                                                                                                                      GAGCTTGCCAAAAATGAAGCGTTCAGCTTTGGTTCCAAGCTTGAAAATGCAAACGTGCTC
                                                                                                                                                                                           GluLeuAlaLysGluAlaIleLeuLysIle----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NOVOZYMES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Clausen IG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0680598
2001US-279526P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2001WO-US31437
                                GlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrp 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               218 A; 147
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BIOTECH INC
                                                                                                                                                                                                                                                                                                                                                    0.0725
93.50
34.43%
21.70%
8.36%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             C; 177
                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                             Mismatches:
                                                                                                                                                                                                                                                                                                                                                                         Indels:
                                                                                                                                                                                                                                                                                                                                                                                                               Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               G; 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 other;
                                                                                                                                                                                                                                                                                                                                                    687
27
84
85
                                                                                                                                                                                           ---AsnAlaAla 49
                                                                                                                                                    237
                                                                                                                57
                                                                           297
```

```
RESULT 2
AAH98375
ID AAH9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       뫄
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                  tomato; monkey; dog; sea urghin; wayawawa _____idiagnostics; forensic test; gene mapping; genetic disorder; biodiversity; gene therapy; nutrition; ss.
                                                                                                                                                                                                                                                                                                                                                                                                 Human EST-derived coding sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                             AAH98375;
                                                                                                                                                       Tang
                                                                                                                                                                                                25-JAN-2000; 2000US-0491404.
17-JUL-2000; 2000US-0617746.
03-AUG-2000; 2000US-0631451.
15-SEP-2000; 2000US-0663870.
                                                                                                                                                                                                                                                                            02-AUG-2001.
                                                                                                                                                                                                                                                                                                                       Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                          Human; sheep;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAH98375 standard; cDNA;
                                                                         Isolated polypeptide for treatment of antibodies and research use -
                                                                                                           P-PSDB; AAM23716.
                                                                                                                                          Cao Y,
                                                                                                                                                                                                                                                       25-JAN-2001; 2001WO-US02687
                                                                                                                                                                                                                                                                                                                                                                                                                       12-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              113
                                                                                                                                                                            (HYSE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetAgnProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHis 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AATGACATCAAAAGAATTTTTACTCAGGAAGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGCAATCCGGTAAAAGTCGCAACAGAACTGCGCAAATCCAATGCGGTTGTC-----AAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MetProProGlnAla-----AlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ArgLeu----ThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGly
                                                                                                                       2001-476164/51.
                                                                                                                                                     YT,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluPheValAsnSerValPheCysGlnGluGlnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGCGGCGGTGAATATTTC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ĠŦĠATCGGCŤŤŤGATTATGAAGGAGACTTCCACGGACAATTGACCAGTAŤĊGCAĠĊÁGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CTGGACAACAACGGGAAAAAACGTCGTCTATCTGCTGACAGACGGTGAGGAAACATGCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CCGACCGGATGGÁCACCGATCGCAAACGCGCTGCAAGATGCAAAAAAACGCGCTTGACCÁG
                                                                                                                                          Drmanac F
                                                                                                                                                                           DESAH
                                                     Page
                                                                                                                                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                            INC
                                                                                                                                                                                                                                                                                                                                                                             ; grd
                                                                                                                                          RΑ,
                                                                                                                                          Zhou P, Qian
, Zhang J, W
                                                                                                                                                                                                                                                                                                                                                                             cow; fruit fly; yeast;
                                                     1275pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -GAGCAAAGCTTCCGCAATTCCTTAAACGGCATCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВP
                                                                                                                                             Werhman
                                                     English.
                                                                                                                                                       XB,
                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID NO:
                                                                                                                                           Wang Z,
wan T;
                                                                                     diseases,
                                                                                                                                                                                                                                                                                                                                                                             hamster; macaque; horse;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              672
                                                                                                                                                                                                                                                                                                                                                                                                    232.
                                                                                                                                                        Chen
                                                                                      diagnostics,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CAGGCAAAAACTAAA
                                                                                                                                                        Asundi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                369
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    94
```

The present invention provides the protein and coding sequences of novel proteins from a variety of organisms, including human, dog, cat, horse, cow, pig, hamster, monkey, macaque, yeast, bacteria, fruit fly, sea urchin and tomato. These were derived from expressed sequence tags (ESTs)

expressed sequence tags (ESTs)

to assess

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ន្តន្តន្តន្ត
                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x AAH98375
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                 Colon disease; colon cancer gene; carbonic anhydrase; galectin; carcincembryonic antigen; colorectal carcinoma tumour associated antigen; fatty-acid binding protein; glutathione peroxidase; guanylin; cytokeratin; cadherin; intestinal mucin; colon cancer; Crohn's disease; metastatic colon cancer; atrophic gastriitis; cholecystitis; irritable bowel syndrome; ulcerative colitis; ss.
                                                                                                                                                                                                                                                                                                                                                                        1176
                                                                                                                                                                                                                                                                                                                                                                                                                         1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 from the organism of interest. They can be used in diagnostics, forensics, gene mapping, identification of mutations, to assess biodiversity and for nutritional purposes. The present sequence
                                                 01-FEB-2000; 2000WO-US02595.
                                                                                                   WO200050588-A2
                                                                                                                                                                                                                                         Clone 2516888 of a novel gene associated with colon
                                                                                                                                                                                                                                                                                              AAA64335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 2823
                         22-FEB-1999;
                                                                                                                                                                                                                                                                                                                      AAA64335 standard; DNA; 2616
                                                                                                                                                                                                                                                                                                                                                                                                 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                  110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the invention.
                                                                                                                            sapiens
                                                                                                                                                                                                                                                                                                                                                                       CTGACTGATGGGGATGCCAATGTTGGTGAGAGCAGACCCGAAAAAATCCAA 1226
                                                                                                                                                                                                                                                                                                                                                                                               LeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys
                                                                                                                                                                                                                                                                                                                                                                                                                        CTGAACAAGGCCCGAGAGGAGCACAGAATCCCAGAGAGGAGCACCTCCATTGTCATCATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                  IleAsn----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGGAGGATAAAGGA---ATGACCAACATCAATGACGGGCTGCTGAGGGGCATCAGTATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GAGCACTTAGTCCAGGCCACGCCCGAGAACCTCCAGGAGGCCAGGACGTTTGTGAAGAGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TTAGAGCAGACAAAGGAGGCCCTTCTCAGAATCCTGGAAGATATGCAAGAGGAAGACTAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TTTGTGATTGACATCAGCGGCTCCATGGCTGGTCGG------AAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----CTGAATTTCATCCTGTTCAGTGGAGATGTG----TCCACATGGAAA
                                                                                                                                                                                                                                                                     (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B₽;
                         99US-0255381
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.882
92.00
46.72%
24.82%
8.22%
                                                                                                                                                                                                                                                                   entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Α.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             744
                                                                                                                                                                                                                                                                                                                      ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                -GlnMetProProGlnAlaAla-----ValIleLeu 121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (1-2823)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             788
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            571
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2823
34
30
45
28
                                                                                                                                                                                                                                          disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence
                                                                                                                                                                                                                                                                                                                                                                                                138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18
                                                                                                                                                                                                                                                                                                                                                                                                                         1175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    68
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA
```

밁 S

TGTATTGATGAAGTGAAA

SerPheAla-----

ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal

CAAAGTGGGGCCATTGTTCATTTATTGCTTTG

CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT

-AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn

밁 S

GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT

834

155 774 152 723 132 663

Ś 밁 S 밁

101

604

GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC

-----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro

115

100 555 80 495 76

603

밁

Ś 밁 δ

81 CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly

ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT CysVal------AlaGlu

556

GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT

Ş 밁

57

GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer

-----ACTGTTGAAAATGGATCCTGGGTGGGG

S 밁

37

388 GTTCTTGATAAGTCTGGAAGCATGGGG-----

GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln

-GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG

468 56 414

밁

469

77

```
coron disease. The gene is coexpressed with one or more colon cancer CC genes selected from carbonic anhydrase I, II and IV (CA I, II and IV), CC carcinoembryonic antigen family of proteins (ceal, colorectal carcinoma CC tumour associated antigen (CO-029), down-regulated in adenoma (dra), CC fatty-acid binding protein (fabp), galectin (galec), glutathione CC peroxidase (gpx2), guanylin (guan), cytokeratin 8 and 20 (ker 8 and 20), CC cadherin (cadher) or intestinal mucin (muc-2). The present polynucleotide CC sequence is useful for diagnosing a disease or condition associated CC with altered expression of the gene. The polynucleotide and encoded CC polypeptides are useful for treating or preventing such diseases. They CC are useful for diagnosing colon cancer, metastatic colon cancer, atrophic gastritis, cholecystitis, Crohn's disease, irritable bowel syndrome and CC ulcerative colitis.
δ
                                                                                                                                                                                                  SXCCCCCCCCCCCCX PX PFFX XXXX
                                 US-10-034-500-2 (1-218) x AAA64335 (1-2616)
                                                                                  Query Match:
                                                                                                Best Local
                                                                                                                  Percent Similarity:
                                                                                                                                                                                                Sequence 2616 BP; 887 A; 488
                                                                                                                                                  No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 2; Page 30-31;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Walker MG,
   17
 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene associated with col
known colon cancer genes
                                                                                                Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          therapy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Volkmuth
                                                                 0.91
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         33pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ξ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Klingler TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        colon cancer and coexpressed with one or
nes in a number of biological samples, for
                                                                                                                                                                                                ü
                                                                                                                                                                                                  515
                                                                                                               Length:
Matches:
Conservative:
                                                              Gaps:
                                                                                  Mismatches:
Indels:
                                                                                                                                                                                                  <u>ດ</u>
                                                                                                                                                                                                  726
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Lal P;
                                                                                                                                                                                                Η.
                                                                                                                                                                                                  0
                                                                2616
46
26
55
75
                                                                                                                                                                                                  other;
   36
```

```
RESULI' 4
AAD3593
ID AAD35
XX AAD3593
XX AAD3593
XX AAD3593
XX AAD35
XX Huma
XX Huma
XX Huma
XX Homc
OS Homc
XX O9-A
XX O9-A
XX O9-A
XX O9-A
XX IS AB-A
XX ABB
PR 31-A
XX ABB
PR 31-A
XX ABB
PR 31-A
XX ABB
PR ABB
XX IS ABB
XX IS ABB
PR ABB
XX IS ABB
PR ABB
XX IS ABB
PR ABB
XX IS ABB
XX IS ABB
XX IS ABB
PR ABB
XX IS 
                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                 밁
                                                                                                                                              S
맑
                                          Ś
                                                                                                                                                                                                     US-10-034-500-2 (1-218) x AAD35923
                                                                                                                                                                                                                                                                                                                                                                                                        Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Billingel
Klass MR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The invention relates to a purified polynucleotide encoding CS193. The polynucleotide is used for detecting, diagnosing, staging, monitoring, prognosticating, preventing or treating diseases and conditions of the gastrointestinal tract, particularly cancer. The CS193 gene is useful i gene therapy. The present sequence is human CS193 full length cDNA.

Note: The present sequence is also shown in column 71-76 of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence 3043 BP; 1023 A; 575
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; Fig 1; 58pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       New purified polynucleotide encoding CS193 antigen, useful for diagnosing, staging, monitoring preventing or treating gastrointestinal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WPI; 2002-328082/36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31-MAR-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27-MAR-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09-APR-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US6368792-B1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cytostatic; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Human; CS193; gastrointestinal tract; cancer; gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human CS193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      26-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAD35923;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAD35923 standard;
                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               specification,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (ABBO ) ABBOTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         895
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          835
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          156
896
                                                                                                    941
                                                  37
                                                                                                                                                   17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 894
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAAAT 900
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                               GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                   LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PA, Cohen M,
Roberts-rapp
-GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   full
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LAB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             but lacks a nucleotide base at the end of each line
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0828856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98US-0049698
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              length
                                                                                                                                                                                                                                                     1.14
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDNA; 3043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Colpitts TL,
, Russell JC,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   from
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ç;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ВP
                                                                                                                                                                                                     (1-3043)
                                                                                                                                                                                                                                                                                                                                                                                                                                                             608 G;
                                                                                                                                                                                                                                                                               Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   clone
                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Friedman PN,
, Stroupe SD;
                                                                                                                                                                                                                                                                                                                                                                                                                                                             837 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   774134IH.
                                                                                                                                                                                                                                                     3043
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hayden
  1021
                                                  56
                                                                                                    967
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1109
                                                             Billingel
Klass MR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1388
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1049
                                                                                                                                                                                                                                                                                          Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1157 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1216
                                                                                                                                                                                                                                                                                                                  cytostatic; gene; ss.
                                                                                                                                                                                                                                                                                                                              Human; CS193;
                                                                                                                                                                                                                                                                                                                                                       Human
                                                                                                                                                                                                                                                                                                                                                                              26-JUL-2002
                                                                                                                                                                                                                                                                                                                                                                                                       AAD35925;
                                                                                                                                                                                                                                                                                                                                                                                                                              AAD35925 standard; cDNA; 3181 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1328 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1387
New purified polynucleotide encoding CS193 antigen,
                        WPI; 2002-328082/36
P-PSDB; AAE22687.
                                                                                                                                                    27-MAR-1998;
                                                                                                                                                                            09-APR-2002
                                                                                                                           31-MAR-1997;
                                                                                                                                                                                                     US6368792-B1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                  (ABBO ) ABBOTT LAB.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                          sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAAAT 1453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CHACTCGATGGATCCGAAGTACTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gln-----AlaAlaVallleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerPheAla---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----ACTGTTGAAAATGGATCCTGGGTGGGG 1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                     CS193 consensus sequence
                                                             PA, Cohen M,
Roberts-rapp
                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                               gastrointestinal tract; cancer;
                                                                                                                            97US-0828856
                                                                                                                                                     98US-0049698
                                                                                                                                                                                                                                                    Location/Qualifiers 25..2778
                                                                                                                                                                                                                             /product= "Human CS193 polypeptide"
                                                              ŗ
                                                              Colpitts TL,
i, Russell JC,
                                                               Friedman PN,
Stroupe SD;
                                                                                                                                                                                                                                                                                                                              gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             .----AlaGlu 80
 useful
                                                                           Hayden M;
  for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           155
```

```
ABA91323
ID ABA
XX
                                                                                                                                                  밁
                                                                                                                                                                              S
                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FFXGXSSSSSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x AAD35925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                   1459
                                                                                                                                                                                                                  1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The invention relates to a purified polynucleotide encoding CS193. The polynucleotide is used for detecting, diagnosing, staging, monitoring, prognosticating, preventing or treating diseases and conditions of the gastrointestinal tract, particularly cancer. The CS193 gene is useful i gene therapy. The present sequence is human CS193 consensus sequence. Note: The present sequence is also shown in column 75-80 of the specification, but lacks a nucleotide base at the end of each line.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    diagnosing, staging, disorders -
             ABA91323 standard; DNA; 3195 BP.
                                                                                                                                                1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3181 BP; 1080 A;
                                                                                                                  173
                                                                                                                                                                                   156
                                                                                                                                                                                                                                                                                                                                                                                                                    1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1; Fig 1; 58pp; English
                                                                                                                                                                                                                                                   153
                                                                                                                                                                                                                                                                                                                                                                                    116
                                                                                                                                                                                                                                                                                                                                                                                                                                                        101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                 GlySer 174
                                                                                                                                                                                                               GGAAGAĠĊTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                      Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                               TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                 GGAAAT 1464
                                                                                                                                                                              -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                  SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                   CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CysVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----ACTGTTGAAAAATGGATCCTGGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.21
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                monitoring preventing or treating gastrointestinal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               593 C; 631 G; 877 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (1-3181)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3181
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      . 1167
                                                                                                                                                                               172
                                                                                                                                                                                                                 1398
                                                                                                                                                                                                                                                                                 1338
                                                                                                                                                                                                                                                                                                                                                   1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                     115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          36
                                                                                                                                                                                                                                                155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 'n
```

S

```
밁
                                                                                          ঠ
                                                                                                                            밁
                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                             밁
                           S
                                                                                                                                                        ঠ
                                                                                                                                                                                             US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                             Query
                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                      diagnosing colon cancer, diagnosing metastasis of colon cancer, staging colon cancer, monitoring colon cancer for the onset of metastasis, and monitoring a change in stage of colon cancer in a patient, by determining the level of a CSG in a sample of cells, tissues or body fluid and comparing it with the level in a corresponding sample from a healthy human control or from a sample taken previously from the patient. Also claimed are methods of identifying therapeutic agents for use in imaging and treating colon cancer. Treatment may involve administering a compound this decrease.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present sequence is that of a colon specific gene (CSG) (see designated LSGold gene 370788. This is 1 of 22 claimed CSGs (see ABA91302-23) identified in the Incyte LIFESEQ Gold database using the data mining Cancer Leads Automatic Search Package (CLASP),
                                                                                                                                                                                                                                                                                                                                                             Sequence 3195
                                                                                                                                                                                                                                                                                                                                                                                                            colon cancer. Treatment may involve administering a which downregulates expression or activity of a CSG. immunotherapy and gene therapy methods may be used.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         which identifies highly expressed organ and cancer specific genes. The CSG, or its encoded protein, can be used as a diagnostic marker of colon cancer. The invention provides claimed methods of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; Page 114-115; 116pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Colon specific polypeptides and polynucleotides useful for diagnosing, monitoring, staging and treating colon cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Colon specific gene; CSG; gene; human; colon cancer; tumour; metastasis; diagnosis; gene therapy; imaging; staging; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                08-APR-2002
                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26-MAY-2000; 2000US-207383P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              29-MAY-2001; 2001WO-US17583
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                06-DEC-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200192528-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Human colon specific gene 370788.
                                                                                                                                                                                                                                             Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (DIAD-) DIADEXUS INC.
                              57 GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                             17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                           GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                               -----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG
                                                                                            GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Chen S,
                                                                                                                                                                                                                                                                                                                                                                                           treating colon cancer comprises a claimed CSG.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                             BP; 1088 A;
                                                                                                                                                                                                                              91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                            x ABA91323
                                                                                                                                                                                                                                                                                                              1.22
                                                                                                                                                                                                                                                                                                                                                              596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ŗ
                                                                                                                                                                                             (1-3195)
                                                                                                                                                                                                                                                                                                                                                             <u>Ω</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sun
                                                                                                                                                                                                                                                                                                                                                             632 G;
                                                                                                                                                                                                                                            Mismatches:
Indels:
                                                                                                                                                                                                                                                                          Matches:
Conservative:
                                                                                                                                                                                                                                                                                                             Length:
-ACTGTTGAAAATGGATCCTGGGTGGGG 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Recipon
                                                                                                                                                                                                                                                                                                                                                             879 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ξ
                                                                                                                                                                                                                            3195
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                gb.
                                                               1033
                              76
                                                                                               56
                                                                                                                                979
                                                                                                                                                             36
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭥
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
THE STANDARD WAS ARREST TO THE STANDARD AND A STANDARD A STANDARD A STANDARD A STANDARD A STANDA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1289
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1121
                                                                  Tang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         haematopoiesis regulation; tissue growth; immunomodulator; activin; inhibin; chemotaxis; chemokinesis; thrombolysis; oncogenesis; proliferation; metastasis; cancer; tumour; haematopoietic disorder; myeloid cell disorder; lymphoid cell disorder; asthma; arthritis; chronic inflammatory condition; proliferative retinopathy; atherosclerosis; coronary heart disease; arterial ischaemia;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            11-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ABA09217;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Human membrane-bound protein homologue-encoding cDNA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ABA09217 standard; cDNA; 3199
WPI; 2001-457740/49
                                                                                                                                                                                                          03-FEB-2000; 2000US-0496914.
27-APR-2000; 2000US-0560875.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               antifungal; vulnerary; antiulcer; ss
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           cell culture; drug screening; gene therapy; antiinflammatory;
antiasthmatic; antiarthritic; haemostatic; antiarteriosclerotic;
                                                                                                                                                                                                                                                                                                         05-FEB-2001; 2001WO-US03800.
                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200157188-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               101
                                                                                                                                        (HYSE-) HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             disorder; osteoporosis; vascular growth disorder;
ue regeneration; wound healing; infection; immune disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                     Ţ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAAT 1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerPheAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cytokine; cell proliferation; cell differentiation;
                                                                  Liu C,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  osteopathic; vasotropic; cardiant; virucide; antibacterial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                     Drmanac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQ ID NO:993.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -CCTCTGGGA 1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       growth factor;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155
```

P-PSDB; ABB11973.

e.g. arthritis and cancer -Human proteins and DNA encoding sequences useful for preventing, treating or ameliorating a medical condition in a mammalian subject

Claim 1; Page 845-846; 1963pp; English

CC haematopoiesis regulatory activity; tissue growth activity:

CC chemotactic or chemokinetic activities; haemostatic, thrombotic or

CC chemotactic or chemokinetic activities; haemostatic, thrombotic or

CC thrombolytic activities; receptor or ligand activities; or may be

CC involved in oncogenesis, cancer cell proliferation or metastasis.

CC bepending on their biological activities, polypeptides and nucleotides of

CC conditions, e.g., by protein or gene therapy. Such conditions include

CC cancers, haematopoietic disorders (e.g., myeloid or lymphoid cell

CC disorders), chronic inflammatory conditions (e.g., asthma or arthritis),

CC proliferative retinopathy, atherosclerosis, coronary heart disease,

CC vascular growth. Polypeptides involved with tissue regeneration and

CC vascular growth. Polypeptides involved with tissue regeneration and

CC repair (or nucleic acids encoding them) may be used to promote wound

CC immunomodulatory activities may be used in the treatment of viral,

CC polypeptides with growth factor activity may be used in cell cultures to

CC promote cell growth. For example, such polypeptides and nucleotides

CC that can be used to augment or replace cells damaged by illness,

CC manipulate stem cells in culture to give rise to neuroepithelial cells

CC that can be used to augment or replace cells damaged by illness,

CC may also be used in the diagnosis of the above conditions, and nucleotides

cc movel human polypeptide of the invention. sequences ABB10981-ABB12330 represent 1350 novel human polypeptides, and sequences ABA08225-ABA09574 represent nucleic acids encoding them. The invention also relates to vectors and recombinant host cells comprising a nucleotide of the invention, methods of producing the novel polypeptides, antibodies against the polypeptides, methods of detecting the nucleotides or polypeptides in a sample, and methods of identifying compounds which bind to polypeptides of the invention. Although novel, many of the polypeptides of the invention have homology to known proteins, thereby in the polypeptides of the invention have homology to known proteins, thereby giving an insight into their probable biological activities, and hence potential therapeutic applications. The polypeptides of the invention may have various activities, including cytokine, cell proliferation or cell differentiation activities; seem cell growth factor activity;

Sequence 3199 BP; 1089 Þ 597 c; 644 G; 869 Ή. 0 other;

Query Match: Score: Pred. Alignment US-10-034-500-2 (1-218) x ABA09217 (1-3199) Percent Similarity: No.: Similarity: 1.22 91.50 35.64% 22.77% 8.18% Gaps: Mismatches: Conservative: 3199 46 26 55 75

Db 10	Ş	Db 10	Ş	Db 5	Оу	Db s	80
72	77	1045	57	991 -	37	64	17
1072 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1131	77 CysValAlaGlu 80	ACTGTTGAAAATGGATCCTGGGTGGGG 1071	57 GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76	GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG	37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56	964 GTTCTTGATAAGTCTGGAAGCATGGGG	17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
.131	õ	.071	76	1044	ğ	990	9

22 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8
SSULT 8  Z65095  AAZ65095  AAZ65095  AAZ65095;  D5-APR-2000 (firs  Membrane-bound pro Membrane-bound pro Membrane-bound pol pharmaceutical; re Homo sapiens.  WO9963088-A2.  09-DEC-1999; 98U 02-JUN-1998; 98U 02-JUN-1998; 98U 02-JUN-1998; 98U 04-JUN-1998; 98U 05-JUN-1998; 98U 05-JUN-1998; 98U 05-JUN-1998; 98U 05-JUN-1998; 98U 05-JUN-1998; 98U 05-JUN-1998; 98U 10-JUN-1998; 98U 10-JUN-1998; 98U 110-JUN-1998; 98U	81 CysAlaValAsnThr 1132 GATGAAAGAACACA 101Ala 1180 GGAACTTCCATCTGC 116 GlnAla                   1240 CAACTCGATGGATGATCC 133 ProValGluGluVal                     1300 TGTATTGATGAAGTG 153 SerPheAla 153 SerPheAla 155 GGAAGAGCTGCTGAT 156Ala 177 GGAAGAGTTCAGATGAA 173 GLYSer 174                     1411 TATGTTTCAGATGAA 173 GGAAAAT 1476
first entry)  protein PRO1124 encoding cDNA.  polypeptide; PRO polypeptide; LDL receptor; TIE ligand; ; receptor immunoadhesin; gene mapping; ss.  99WO-US12252.  98US-0087607 98US-0087607 98US-0088021. 98US-0088025. 98US-0088028. 98US-0088028. 98US-0088029. 98US-0088029. 98US-0088029. 98US-0088020. 98US-0088021. 98US-0088021. 98US-0088021. 98US-0088021. 98US-0088734. 98US-0088734. 98US-0088741. 98US-0088741.	CysAlaValAsmThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$
23 JUN 1998 24 JUN 1998 25 JUN 1998 25 JUN 1998 25 JUN 1998 25 JUN 1998 26 JUN 1998 27 JUN 1998 28 JUN 1998 29 JUN 1998 20 JUN 1998 20 JUN 1998 21 JUN 1998 22 JUN 1998 23 JUN 1998 24 JUN 1998 25 JUN 1998 26 JUN 1998 27 JUN 1998 28 JUN 1998 29 JUN 1998 20 JU	0-JUN-199 0-JUN-199 0-JUN-199 0-JUN-199 0-JUN-199 1-JUN-199
98US-0090431 98US-0090431 98US-0090431 98US-0090441 98US-0090441 98US-0090441 98US-0090538 98US-0090557 98US-0090690 98US-0090690 98US-0090691 98US-0090691 98US-0090691 98US-0090691 98US-0090691 98US-0091358 98US-0091358 98US-0091358 98US-0091544 98US-0091544 98US-009154 98US-009154 98US-009154 98US-009154 98US-009154 98US-009154 98US-009155 98US-009155 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-009165 98US-0093339 98US-0095285 98US-0095285	8US-00888 8US-00888 8US-00888 8US-00888 8US-00888 8US-00888 8US-00899 8US-00899 8US-00899 8US-00899 8US-00899 8US-00899 8US-00899

04-AUG-1998; 04-AUG-1998; 04-AUG-1998; 10-AUG-1998;

98US-0095321. 98US-0095325. 98US-0095318

-AUG-1998

```
$\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2}\frac{1}{2
  Score:
                    Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18-AUG-1998;
18-AUG-1998;
18-AUG-1998;
19-AUG-1998;
20-AUG-1998;
24-AUG-1998;
26-AUG-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 10-AUG-1998;
11-AUG-1998;
11-AUG-1998;
12-AUG-1998;
                                                                                                                                         polynuclectides encoding them. The PRO sequences of the invention were identified based on extracellular domain homology screening. The PRO sequences have homology with proteins including LDL receptors, TIE ligands and various enzymes. The membrane-bound proteins and receptor immunoadhesins, for instance, can be used as therapeutic agents to block receptor-ligand interactions. The membrane-bound proteins can also be employed for screening of potential peptide or small molecule inhibitors of the relevant receptor/ligand interaction. The PRO encoding sequences are useful as hybridization probes, in chromosome and gene mapping and in the generation of antisense RNA and DNA. PRO nucleic acid sequences will also be useful for the preparation of PRO polypeptides, especially
                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Membrane-bound proteins and related nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI; 2000-072883/06.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baker
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17-AUG-1998;
17-AUG-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17-AUG-1998
                                                                                   Sequence 3265
                                                                                                                                                                                                                                                                                                                                                                                                              The invention provides membrane-bound PRO polypeptides and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wood WI,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   18-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (GETH )
                                                                                                                              recombinant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAY66749
                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fig 273; 822pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Chen
Yuan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           98US-0097971.
98US-0097974.
98US-0097978.
98US-0097979.
98US-0097979.
98US-0098014.
98US-0098525.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0096894.
98US-0096895.
98US-0096897.
98US-0096949.
98US-0096950.
98US-0096959.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0097141.
98US-0097218.
98US-0097661.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    98US-0096959.
98US-0096960.
98US-0097022.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0096791.
98US-0096867.
98US-0096891.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            98US-0096766.
98US-0096768.
98US-0096773.
                                                                                 BP; 1159 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  98US-
                                                                                                                              techniques.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ָט <u>ָ</u>ט
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SU86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 98US-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0100634
99US-0115565
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98US-0096757
1.26
91.50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -0096329
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -0096146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -0096143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -0096012
                                                                                                                                                                                                                                                                                                                                                                                                                                                      English.
                                                                                   596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۶
                                                                                 Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gurney AL,
                                                                                 632 G;
Length:
Matches:
                                                                                                                                                in chromosome and gene mapping and in DNA. PRO nucleic acid sequences tion of PRO polypeptides, especially
                                                                                   878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Smith
                                                                                   Ή.
                                                                                   0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sequences
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    <
3265
46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Watanabe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ద
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                             ş
                                                                                                                                                                                                                                                                                                                                                        벙
                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2 (1-218)
XAXEXEXEXEXEXEX
                                                                                                                                                                                                                                                               AAS46053
                                                                                                                                                                                                                                                                                                       1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1120
                                                                                                                                                                                                                                                                                                                                                          1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1060
                                                                                                dog; cat; pig; goat; rabbit; tumour necrosis factor alpha; TNF-alpha; blood; chondrocyte cell; cell proliferation; cell differentiation; co adrenal; lung; breast; prostate; rectum; cervix; liver; genetic disor
                                                                                                                                                                   Human DNA encoding
                                                                                                                                                                                               18-DEC-2001
                                                                                                                                                                                                                         AAS46053;
                                                                                                                                                                                                                                                   AAS46053 standard;
                                                                                                                                                                                                                                                                                                                                                                                                             1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1168
                                                                                                                                        PRO polypeptide; mammal; tumour; cancer; human; cattle;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         952
                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133
                                                                                                                                                                                                                                                                                                                                                                                   156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        77
                                                                                      primer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGAAAGAÁACÁCTCATGGCAGGATTÁCCTACATAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CysVa1-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTTCTTGATAAGTCTGGAAGCATGGGG--
                                                                                                                                                                                                                                                                                                                                                                                                                                     SerPheAla----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gln---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG
                                                             sapiens.
                                                                                                                                                                                                                                                                                                       GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                GlySer 174
                                                                                                                                                                                                                                                                                                                                                          TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                           GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                ------AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          x AAZ65095 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    35.64%
22.77%
8.18%
21
                                                                                                                                                                   PRO polypeptide sequence
                                                                                                                                                                                                                                                   cDNA; 3265
                                                                                                                                                                                                                                                    ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AlaGlu
                                                                                                                                                                       #129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---CCTCTGGGA
                                                                                                     genetic disorder;
                                                                                                                                            horse; sheep; ss;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1167
                                                                                                                                                                                                                                                                                                                                                                                                               1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36
                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            978
                                                                                                                    colon;
```

20-SEP-2001 WO200168848-A2

28-FEB-2001;

2001WO-US06520

```
Sequences AAS45925-AAS46231 represent DNA molecules encoding and PCR CC primers for PRO polypeptides of the invention. The sequences of the CC invention can be used to detect the presence of a tumour in a mammal by CC comparing the level of expression of a PRO polypeptide in a test sample CC of cells from the animal and a control sample of normal cells, whereby a CC higher level of expression in the test sample indicates the presence of a cumour in the mammal. Mammals include dogs, cats, cattle, horses, sheep, CC pigs, goats and rabbits but are preferably human. The polypeptides can be used to stimulate tumour necrosis factor (TNF) alpha release from human CC blood, when contacted with it. A specific polypeptide can be used to stimulate the proliferation or differentiation of chondrocyte cells. The CC PRO proteins can be used to determine the presence of tumours and also consecutive, rectal, cervical, or liver tumours, in mammalian CC subjects. The oligonucleotide probes specific for the PRO nucleic acids cc can be used for genetic analysis of individuals with genetic disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       14 MAR 2000
15 MAR 2000
15 MAR 2000
21 MAR 2000
22 MAR 2000
23 MAR 2000
24 MAR 2000
11 APR 2000
25 APR 2000
26 APR 2000
27 APR 2000
28 JUL 2000
29 JUL 2000
21 APR 2000
22 APR 2000
                                                                                                                                                                                                                                                                                                             Novel nucleic acids encoding PRO polypeptides, used to diagnose the presence of tumours, such as prostate and breast tumours, in mammal to screen for modulators of the compounds -
                                                                                                                                                                                                                                                                                Claim 2; Fig 257; 774pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (GETH )
                                                                                                                                                                                                                                                                                                                                                                                                                              Ģ
                                                                                                                                                                                                                                                                                                                                                                              2001-602746/68.
DB; AAU29152.
                                                                                                                                                                                                                                                                                                                                                                                                                           KP, Chen J, Desnoyers
, Smith V, Watanabe CK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENENTECH
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ; 2000US-194449P.
; 2000US-194647P.
; 2000US-195975P.
; 2000US-196000P.
; 2000US-196187P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000WO-US23328.
2000WO-US30952.
2000WO-US32678.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2000US-196690P.
2000US-196820P.
2000US-198121P.
2000US-198585P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2000WO-US14941.
2000WO-US15264.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2000US-199397P.
2000US-199550P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-193053P.
2000WO-US08439.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-192655P.
2000US-193032P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2000US-191007P
2000US-191048P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000US-0644848
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000WO-US14042.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000US-201516P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-190828P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000US-189328P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2000WO-US05601.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             INC
                                                                                                                                                                                                                                                                                                                                                                                                                   K, Wood WI,
                                                                                                                                                                                                                                                                                                                                                                                                                         Goddard A, Go
                                                                                                                                                                                                                                                                                                                                                                                                                                           Godowski PJ,
                                                                                                                                                                                                                                                                                                                                in mammals
```

Gurney AL;

and

08-MAR-2001.

```
RESULT 10
AAF92092
ID AAF92
XX AAF92
XX AAF92
XX 15-MA
AX 15-MA
AX Human
XX Human
XX Human
XX Homo
XX Homo
XX Homo
XX MO200
XX MO200
XX MO200
XX MO8-MA
                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                     1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1168
                           WO200116318-A2
                                                    Homo sapiens.
                                                                                                     Human PRO1124 cDNA
                                                                                                                                                        AAF92092;
                                                                                                                                                                                  AAF92092 standard; cDNA; 3265 BP
                                                                                                                                                                                                                                                                                                                                           1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                               15-MAY-2001
                                                                                                                                                                                                                                                              173
                                                                                                                                                                                                                                                                                                                                                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                            GlySer
                                                                                                                                                                                                                                                                                      TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                         GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                     ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                             ------AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                   SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                             TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                               CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluLeuAlaLysGluAlaIleLeuLysIleAspAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                           PRO protein; mapping;
                                                                                                                                                                                                                                                              174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                             (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP; 1159 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                x AAS46053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1.26
91.50
35.64%
22.77%
8.18%
                                                                                                                               entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               596 C;
                                                                             88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                G; 878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T;
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1167
                                                                                                                                                                                                                                                                                                                                         1398
                                                                                                                                                                                                                                                                                                                                                                                             1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         115
                                                                                                                                                                                                                                                                                                                                                                                                                                               1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         36
                                                                                                                                                                                                                                                                                                                                                                   155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                978
```

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             $\times \times \
밁
                                        Ś
                                                                                              밁
                                                                                                                                         Ś
                                                                                                                                                                                               밁
                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2 (1-218) x AAF92092 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18-FEB-2000;
18-FEB-2000;
22-FEB-2000;
01-MAR-2000;
03-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-SEP-1999;
15-SEP-1999;
07-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Eaton DL,
Grimaldi (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The present sequence is the coding sequence for a human PRO polypeptide (secreted and transmembrane). The PRO protein, and PRO agonists, PRO antagonists or anti-PRO antibodies are useful from preparation of a medicament useful in the treatment of a condition which is responsive to the PRO protein, agonists, antagonists or anti-PRO antibodies. The PRO protein may also be employed as molecular weight markers for protein electrophoresis. The PRO coding sequence has applications in molecular in the protein sequence has applications in molecular sequences.
1120
                                                                                                1060
                                                                                                                                                                                                 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      biology, incl
gene mapping.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 2; Fig 69; 278pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Eighty four nucleic acids encoding PRO polypeptides, useful in molecular biology, including use as hybridization probes, and in chromosome and gene mapping. -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             25-APR-2000;
22-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-DEC-1999;
11-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  24-AUG-2000;
                                                                                                                                                                                                                                                                                                  979
                                                                                                                                                                                                                                                                                                                                                                                                 952
                                                                                                                                              77
                                                                                                                                                                                                                                               57
                                                                                                                                                                                                                                                                                                                                                37
                                                82
                                                                                                                                                                                                                                                                                                                                                                                                                                            17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2001-183260/18.
                                                                                                                                              CysVal----
GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT---
                                           CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                               GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                              GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                   GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                              ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENENTECH INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAB87560
                                                                                                                                                                                                                                                                                             |||----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 <u>ر</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             including use as hybridisation probes, and in chromosome
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Filvaroff E,
J, Gurney AL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2000WS-0175481
2000WO-US04341
2000WO-US04342
2000WO-US04414
2000WO-US05601
2000WS-0187202
2000WS-0199397
2000WS-0199397
2000WS-0209832
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2000WO-US23328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99WO-US21090.
99US-0169495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  99US-0170262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99WO-US20111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1159 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.26
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gerritsen ME,
Watanabe CK,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          596
                                                                                                                                                                                               -----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Goddard A, Wood WI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Τ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Godowski PJ;
                                                                                                                                              -----AlaGlu
  CCTCTGGGA
                                                                                              1119
                                                                                                                                                                                               1059
                                                                                                                                              80
                                                                                                                                                                                                                                               76
                                                                                                                                                                                                                                                                                                  1032
                                                                                                                                                                                                                                                                                                                                                                                                                                               36
                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                   978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ç
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      믕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
RESULT 11
                                                                                                                   26-JUL-1999
28-JUL-1999
17-AUG-1999
15-SEP-1999
16-OCT-1999
30-NOV-1999
30-NOV-1999
16-DEC-1999
20-DEC-1999
20-DEC-1999
05-JAN-2000
06-JAN-2000
                                                                        11-FEB-2000;
18-FEB-2000;
22-FEB-2000;
24-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1339
                                                                                                                                                                                                                                                      07-JUL-1999;
20-JUL-1999;
                                                                                                                                                                                                                                                                                                                                  07-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                   diagnostic assay; ss.
                                                                                                                                                                                                                                                                                                                                                                                                             Human; secreted and transmembrane protein; PRO; cytostatic;
cell death; cancer; chromosomal mapping; gene mapping; tissue typing;
                                                                                                                                                                                                                                                                                                                                                                                                                                              Human PRO1124 (UNQ562) nucleotide sequence SEQ ID NO:378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     02-APR-2001
                                                                                                                                                                                                                                                                            23-JUN-1999
                                                                                                                                                                                                                                                                                     02-JUN-1999;
                                                                                                                                                                                                                                                                                                             30-MAR-2000;
                                                                                                                                                                                                                                                                                                                                                        WO200073454-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAF44241 standard; cDNA; 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
        GENENTECH
                            2000WO-US00219.
2000WO-US03565.
2000WO-US03565.
2000WO-US04414.
2000WO-US04414.
2000WO-US04914.
2000WO-US05841.
2000WO-US05841.
2000WO-US05841.
2000WO-US05884.
2000WO-US058888.
                                                                                                                                                                                                                                                                                                             2000WO-US08439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (first entry)
                                                                                                                                                                                                            99US-0145698.
99US-0146222.
99US-0149396.
99WO-US21090.
                                                                                                                                                                99US-0158663.
99WO-US28313.
99WO-US28301.
                                                                                                                                           99WO-US30095.
99WO-US30911.
                                                                                                                                                                                                                                                         99US-0144758.
                                                                                                                                                                                                                                                                                         99WO-US12252
                                                                                                                                                                                                 99WO-US21547
                                                                                                                                                                                                                                                                            99US-0141037
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             - CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x AAF44241 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ferrara N, ... Grimaldi CJ, Gurn
Grimaldi CJ, Gurn
MA, Stewart T
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    sequences, and their fragments, can be used as hybridisation probes, in chromosomal and gene mapping, and in the generation of anti-sense RNA and DNA. They may also be used to produce transgenic animals which are used to develop and screen therapeutically useful reagents. The PRO nucleotide and protein sequence can be used for tissue typing and in treating cancer. Anti-PRO antibodies can be used in diagnostic assays. AAF44270 to AAF44470 represent PCR primers and hybridisation probes used in the isolation of human PRO sequences. AAF44087 to AAB65300 represent human PRO polynucleotide and protein sequences given in the exemplification of the present invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ashkenazi .
Ferrara N,
                                                                                                                                                                              1168
                                                                                                                                                                                                                                                                                                                                                           1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 3265 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               can
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               specific cells, to cause targeted cell death
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRO polynucleotides used bioactive molecules such
                                            133
                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         979
                                                                                                                                                                                                                                                                                                                                                                                                       77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37
                                                                                                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   present invention describes human secreted and transmembrane PRO teins. The PRO proteins have cytostatic activity. The PRO proteins be used for targeted delivery of bioactive molecules, such as be used for targeted delivery of bioactive molecules, such as lens, radiolabels or antibodies, that cause cell death. PRO nucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2001-032160/04.
DB; AAB65272.
                         ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                            GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1:2:
                                                                                                                                                                                                                                                                    GATGAAAGAÁACACACTCATGGCAGGATTACCTACATAT
                                                                                                                                                                                                                                                                                                                                                        ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                     CysVal--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                   CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                            CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
TGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                 ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCAGCAAAACATTTCCTGCTGCÄG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2; Fig
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1 AJ,
N, Fong b,
TT, Gurney A
                                                                                                                                                                                                                                                                                                                                                                                                                                              -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     273;
                                                                                                               AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 935pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.26
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         KP, Botstein D, Desnoyers L, Eaton
Gerber H, Gerritsen ME, Goddard A,
AL, Kljavin IJ, Napier MA, Pan J,
Tumas D, Watanabe CK, Williams PM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Α.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  to produce polypeptides used to target as toxins, radiolabels or antibodies,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ç
CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              632 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0 other;
                                                                                                                                                                                                                                                                                                                                                                                                  -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Eaton
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Godowski
Paoni NF;
Wood WI;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ç
                                                                                                                                                                                                                                                                  1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ę,
```

S

밁 ঠ 밁 ঠ 닭 S 밁 Ś

밁

ð

밁 S S

밁

```
RESULT 12
AAS59553/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
CC Propionibacterium acnes immunogenic polypeptides. The proteins and their CC diagnosis of medical conditions caused by P. acnes. The disorders include CRAPHO syndrome (synovitis, acne, pusculosis, hypertosis and contended co
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-APR-2000;
02-JUN-2000;
07-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                vaccinating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Propionibacterium acnes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Skeiky YAW,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SAPHO syndrome; synovitis; acne; pustulosis; hypertosis; osteomyelitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAS59553 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequences AAS59506-AAS59804 represent DNA molecules encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; SEQ ID No 48; 1069pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-APR-2001; 2001WO-US12865
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Propionibacterium acnes.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           dermatological; osteopathic; neuroprotectant; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           uveitis; endophthalmitis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Propionibacterium acnes immunogenic protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (CORI-) CORIXA CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      inflammatory
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerPheAla----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ; 2000US-199047P.
; 2000US-208841P.
; 2000US-216747P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                against and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Persing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   phthalmitis; bone; joint; central nervous system; Elesion; acne vulgaris; enzyme linked immunosorbent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ģ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA; 37716 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         g DH,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             polypeptides and nucleic acids useful diagnosing infections, especially use
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mitcham JL, Wang SS,
, Jen S, Carter D;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  especially useful for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 #48.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155
```

```
δ
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SXS
                                                                                                                                                                                                                                                                                                                                                                                  RESULT 13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-034-500-2 (1-218) x AAS59553 (1-37716)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . No.:
                                                                                                                                                                                                                                                                                                                                                                                                            8281
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8611
                                                                                                                                                                                                                                                                                                                                                                                                                                                              8341
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8560
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence 37716
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    at ftp.wipo.int/pub/published_pct_sequences.
                                                                                        exon
                                                                                                                                                                                                                                                                                                                                   AAI71344;
                                                                                                                                                                                                                                         NADP-dependent glutamate dehydrogenase; GDH; AN-gdh-17; overexpression; amino acid content; nutritional value; transgenic plant; tomato;
                                                                                                                                                                                                                                                                              A. nidulans NADP-dependent glutamate dehydrogenase coding sequence
                                                                                                                                                                                                                                                                                                                                                          AAI71344 standard;
              04-SEP-2001
                                                                                                                          misc_feature
                                                                                                                                                                                                                                                                                                         15-JAN-2002
                                       JP2001238556-A
                                                                                                                                                                                                    Aspergillus nidulans.
                                                                                                                                                                                                                              Lycopersicon
                                                                                                                                                                                                                                                                                                                                                                                                                                     127
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18 ValAspTyrSerGlySerMetMetLysHisValAlaValArgGluPro---LysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                            ACGAATGTTGGCCGTCCTTCTCTTGAAGCAGCCAAG 8246
                                                                                                                                                                                                                                                                                                                                                                                                                                                             GATCCGAAACATCCCGGACAGAAGCCACCAGCGGCGATCGTGCTCCTTTCTGACGGTGCA 8282
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----ProGlnAlaAlaVallleLeuLeuThrAspGlyHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---ACCGCGATCGGCGAGGGGATTTATTCCTCCCTCAACGCTCTCAAACTGGTTCCGGAC 8342
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetPro---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCCACGACCGATCGTGCCGCCGTATCGACTGCGATCACGAACCTCCAGGTGCTGCCATCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyGlyLeuTyrThrPheAlaProTyrSer---ValIleIleProGlnGlySerTrpAsn 75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCGCTGCTAAGACTGCTGCGAAGGATTTCCTGGGGGGATTTGCCGCCA---CGGTTCAAT 850
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATTGACGTGTCGCGCTCAATGGTGGCGACGGACGTT------GAACCCTCTCGACTT
                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnAsnLeuGlyMetAsnProValGluGluValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTCTCCTTGGTGAAGTTCGCAGCATCTGCTCAGGTCGTGGTACCC------
                                                                                                                                                                                                                                esculentum;
                                                                                                                                                                                                                                                                                                         (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP;
                                                                                 /*tag= b
/note= "Splice = 323..1380
                                                                                                                           /number= 1
322..323
                                                                                                                                                                              location/Qualifiers
                                                                number=
                                                                                                                                                       *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60.3
90.50
44.70%
27.27%
8.09%
                                                                                                                                                                                                                                                                                                                                                          DNA; 1380
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               7884 A;
                                                                                                                                                    נום
                                                                            a
                                                                                                                                                                                                                                ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               11879 C; 10798 G; 7150 T; 5 other;
                                                                                                                                                                                                                                                                                                                                                            ВP
                                                                                                    junction
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Matches:
Conservative:
Mismatches:
Indels:
                                                                                                     between
                                                                                                                                                                                                                                                                                                                                                                                                                                     138
                                                                                                     exons 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37716
36
23
52
52
7
                                                                                                     and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               8399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8459
```

```
Ś
                                                                                                                                                                             Ş
                                                                                                                                                                                                                   뫄
                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                      밁
                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-034-500-2 (1-218) x AAI71344 (1-1380)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NADP-dependent glutamate dehydrogenase (GDH) gene, referred to as AN-gdh-17 in the specification. The invention relates to the generation of transgenic plants (e.g., tomato) which overexpress GDH, the transgeni plants themselves, and the seeds and progeny of such plants. The method of the invention involves transforming a plant with a genetic construct comprising a GDH sequence, a promoter such as the CMV (cauliflower mosaic virus) 35S promoter or the tomato fruit-specific promoter 2All, and marker gene, and then selecting plants on the basis of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Creation of a transgenic plant of improved amino acid composition for
use as a food, comprises culturing a plant transformed by a genetic
structure giving an excessive expression of glutamate dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1380 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           phenotype conferred by expression of the marker gene. The transgenic plants of the invention accumulate larger quantities of free amino acids in the edible tissues (e.g., fruit) relative to wild-type plants, giving
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              This sequence represents the coding sequence of the Aspergillus nidulans NADP-dependent glutamate dehydrogenase (GDH) gene, referred to as
                                                                                                                                             1030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         such plants a higher nutritional value.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Example 1; Fig 1-2; 47pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WPI; 2001-610051/70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-DEC-2000; 2000JP-0404322.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (AJIN ) AJINOMOTO KK
                                  142
                                                                                                        122
                                                                                                                                                                                 102
                                                                                                                                                                                                                   886
                                                                                                                                                                                                                                                                                            928
                                                                                                                                                                                                                                                                                                                                                                  868
                                                                                                                                                                                                                                                                                                                                                                                                                                           808
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   748
                                                                                                                                                                                                                                                                                                                                65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     17
                                                                                                                                                                                                                                                       82
                                                                                                                                                                                                                                                                                                                                                                                                      53
                                                                                                                                                                               GlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeu 121
                                                                                                                                                                                                                                                                                            CCCGGCAAGTTCGAGGTTGCTCTCCCTTCTGCCACTCAGAACGAAGTCTCCGGCGAGGAA 987
                                                                                                                                                                                                                                                                                                                                                                  TCCTCCGCTTTCGCCGGCAAGTTCACCTACATCCCCGATGCTCGCCCCTTGGACCAACATT 927
                                                                                                                                                                                                                                                                                                                                                                                                   MetSerTyrGlnGlyGlyLeuTyrThrPheAlaPro-------
                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaLysGluAlaIleLeuLysIleAsn-----AlaAlaMetProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTTTCCGACTCCAAGGGCTCTCTCATTGTCAAGGATGAGTCCGCTTCTTTCACCCCTGAA 807
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores:
                              GlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLys 161
                                                                      TTT---GAGGCTCACCGCAAC-----GCCAACCCCGGCGATGCCATCTGGTAC-----
                                                                                                      LeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyr 141
                                                                                                                                           GGTTCCAACATGGGTTGCACC----
                                                                                                                                                                                                                     GCCGAGCACCTCATCAAGTCCGGTGTCCGCTAT----
                                                                                                                                                                                                                                                     AlaValAsnThrIleLγεSerAspLeuGluIlePheGlyArgLeuThrProValGlyAsp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                          -TyrSerVallleIleProGlnGlySerTrpAsnSerCysValAlaGluCys 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           256 A; 440 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             90.00
37.63%
24.19%
8.04%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           361 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           323 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           0 other;
                                                                                                                                                                                                                       ----- ATTGCTGAG 1029
                                                                                                                                               CAGGCCGCCATCGACATC 1068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1380
45
25
60
56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            genetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 transgenic
1125
                                                                        1113
                                                                                                                                                                                                                                                                                                                                                                                                        64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52
```

S

162

AlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGln 181

```
Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RESULT 14
AAI71343
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
 Percent Similarity:
Best Local Similarity:
                                                     Alignment Scores:
                                                                                                              This sequence represents the Aspergillus nidulans NADP-dependent glutamate dehydrogenase (GDH) gene, referred to as AN-gdh-17 in the specification. The invention relates to the generation of transgenic plants (e.g., tomato) which overexpress GDH, the transgenic plants of the seeds and progeny of such plants. The method of the invention involves transforming a plant with a genetic construct comprising a GDH sequence, a promoter such as the CMV (cauliflower mosaic virus) 35S promoter or the tomato fruit-specific promoter 2A11, and a marker gene, and then selecting plants on the basis of the phenotype conferred by expression of the marker gene. The transgenic plants of the invention accumulate larger quantities of free amino acids in the edible tissues (e.g., fruit) relative to wild-type plants, giving
                                                                                                                                                                                                                                                                                                                      Creation of a transgenic plant of improved amino acid composition for use as a food, comprises culturing a plant transformed by a genetic structure giving an excessive expression of glutamate dehydrogenase -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1165
                                                                               Sequence 1433
                                                                                                                                                                                                                                                                                              Claim 4; Fig 1-2; 47pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             18-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  JP2001238556-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       exon
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             intron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Aspergillus nidulans.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NADP-dependent glutamate dehydrogenase; GDH; AN-gdh-17; overexpression; amino acid content; nutritional value; transgenic plant; tomato;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Aspergillus nidulans NADP-dependent glutamate dehydrogenase
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15-JAN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAI71343;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAI71343 standard; DNA; 1433
                                                                                                                                                                                                                                                                                                                                                                                                         (AJIN ) AJINOMOTO KK
                                                                                                                                                                                                                                                                                                                                                                                                                                   16-DEC-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       182
                                                                                                          plants a higher nutritional value
                                                                                                                                                                                                                                                                                                                                                                             2001-610051/70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuLeuGlnAsnProAla 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGCTCAGAACTCTGCT 1182
                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000JP-0404322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    esculentum; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first
                                                                               B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                   99JP-0376710
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /number= 1
323..375
/*tag= b
/number= 1
376..1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     *tag= a
                                                                               269 A;
0.579
90.00
37.63%
24.19%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        a
                                                                               448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВP
                                                                               374 G; 342
                         Length:
Matches:
 Mismatches:
             Conservative:
                                                                               H
                                                                               0
                                                                               other;
                                       1433
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               plant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        gene
```

```
RESULT 15
ABA03041/c
ID ABA030
XX ABA030
XX ABA030
XX ABA030
XX ABA030
XX ARTER
XX ARTER
XX VITAMA
XX VITAMA
XX VITAMA
XX ISTER
XX VO2001
XX I1-APR
XX I1-APR
XX INSP
XX BUChri
PI Dussur
PI Dussur
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218)
 Buchrieser C, Frangeul L, Cou-
Dussurget O, Chetouani F, Ned
Daniels J, Goebel W, Kreft J,
                                                                                                                                                                                                                                                                                                                                                                                                                        1218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1041
                                                                                                                  11-APR-2001; 2001WO-FR01118
                                                                                                                                                                          WO200177335-A2
                                                                                                                                                                                                       Listeria monocytogenes.
                                                                                                                                                                                                                                                                                                        05-FEB-2002
                                                                                                                                                                                                                                                                                                                                                              ABA03041 standard; DNA; 2944528
                                                                                      11-APR-2000; 2000FR-0004629
                                                                                                                                               18-OCT-2001.
                                                                                                                                                                                                                                  vitamin
                                                                                                                                                                                                                                             Antibacterial; gene therapy; vaccine; biosynthesis; biodegradation;
                                                           (INSP ) INST PASTEUR
                                                                                                                                                                                                                                                                                                                                                                                                                                                   182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        981
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               921
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGGCTCAGAACTCTGCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                  LeuLeuGlnAsnProAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CCCGGCAAGTTCGAGGTTGCTCTCCCTTCTGCCACTCAGAACGAAGTCTCCGGCGAGGAA 1.040
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCCTCCGCTTTCGCCGGCAAGTTCACCTACATCCCCGATGCTCGCCCCTTGGACCAACATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLeuAlaLysGluAlaIleLeuLysIleAsn----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TTT---GAGGCTCACCGCAAC-----GCCAACCCCGGCGATGCCATCTGGTAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyr 141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCCGAGCACCTCATCAAGTCCGGTGTCCGCTAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAsp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CTTTCCGACTCCAAGGGCTCTCTCATTGTCAAGGATGAGTCCGCTTCTTTCACCCCTGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGTTCCAACATGGGTTGCACC--------CAGGCCGCCATCGACATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----TyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         MetSerTyrGlnGlyGlyLeuTyrThrPheAlaPro------
                                                                                                                                                                                                                                 B12; bacterial infection; disease;
                                                                                                                                                                                                                                                                           monocytogenes EGD-e
                                                                                                                                                                                                                                                                                                       (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x AAI71343 (1-1433)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8.04%
22
                                                                                                                                                                                                                                                                                                                                                                                                                        1235
                                                                                                                                                                                                                                                                                                                                                                                                                                                  187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCCGCCAACGCTGGTGGTGTCGCCGTCTCTGGTCTTGAG
 Couve E, Rus
Nedjari H, G
ft J, Kuhn M,
                                                                                                                                                                                                                                                                           genome sequence.
                                                                                                                                                                                                                                                                                                                                                                쁑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Indels:
Rusniok C, Fsihi H, Dehoux
, Glaser P, Kunst F, Cossar
M, Ng E, Vazquez-Boland JA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AlaAlaMetProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----ATTGCTGAG
                Dehoux P;
Cossart P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1082
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1166
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       920
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   52
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          64
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                       S
Ś
                                       뭕
                                                                        8
                                                                                                              밁
                                                                                                                                                  S
                                                                                                                                                                                      뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                 2516316
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2516361 AACGGAAAATCAATGATGCGCCAAATGGCAATGGATTATCCGGAA---
                                                                                                                                                                                                                                                                                                                                       2516193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                selecting probes and primers for detecting genes in L. monocytogenes and related organisms, and to study genetic polymorphisms and other genomes. Proteins (ABB47297-ABB50149) expressed from the present sequence are useful for raising specific antibodies, identification of L. monocytogenes and related organisms, and for biosynthesis and biodegradation, especially biosynthesis of Vitamin B12. This sequence and proteins encoded by it are also useful for selecting compounds that regulate gene expression and cell replication and modulate L. monocytogenes-related diseases. In addition, this sequence and proteins encoded by it are useful in pharmaceutical and vaccines compositions for the treatment or prevention of infections by L. monocytogenes and related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Genomic sequence for Listeria monocytogenes, useful e.g. for and prevention of Listeria and related bacterial infections, related polypeptides -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Chakraborty T, Domann E,
Perez-Diaz J, Baquero F,
Maduenio E, De Pablos B,
Rose M, Voss H;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Claim 1; SEQ ID No 1; 192pp; French
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 2002-010914/01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    organisms.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 2944528
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Dominguez-Bernal G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    specification,
                                                                                                                                                  111 AsnGlnMetPro-----ProGlnAlaAlaValIleLeu-----LeuThrAspGly
     146 AsnValCysPheHisVal--
                                                                                                                                                                                                                   92 IlePhe---GlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIle 110
                                                                                                                                                                                                                                                                                                                                                                           60
                                                                                                                                                                                                                                                                                                                                                                                                                                                 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        21
                                                                                                                                                                                                                                                                                                   72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ftp.wipo.int/pub/published_pct_sequences.
                                                                          HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                 GlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGlu 91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerGlySerMetMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                                                                                                                                                                                                                                                                                                                                                         TyrThrPheAlaProTyr----
                                                                                                                                                                                                                                                                                                                                                                                                                                               GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln---GlyGlyLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The sequence data for this patent did not form part of the printed fication, but was obtained in electronic format directly from WIPO
                                                                                                                                                                                      ATCTGGAACGGTGGGGTTCACCCTGGTGGCGAAACAATTTCTTATTATGCCGATGTA---
                                                                                                                                                                                                                                                              GGCGAA/TGG-----
                                                                                                              GATACGCTTCCTGTATTTGCAAAAGCTGGAGCAATTATTCCGATGAATATGACAGATGGA
                                                                                                                                                                                                                                                                                                                                                                                                             -----GATGTCAATGCACGTGATTTGGATGAGCAGTATATGTTTTGGTGACGAT 2516269
                                       TAC---CAACTTGGTCAAAACGTCGGAAACGATTTAAAATCCTAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           This sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           BP; 914202 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          x ABA03041 (1-2944528)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90.00
36.47%
21.96%
8.04%
24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4.11e+04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Garrido-Garcia P, Tierrez-Martinez A, Ameno
nn E, Hain T, Berche P, Charbit A, Durant
ro F, Garcia Del Portillo F, Gomez-Lopez N;
os B, Wehland J, Kaerst U, Entian K, Hauf
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         is the genome sequence of Listeria monocytogenes and fragments of this sequence are useful for
                                                                                                                                                                                                                                                         563301 C; 555061 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                       -----SerValIleIleProGln 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tierrez-Martinez A, Amenu A,
 -ValSerPheAlaAspAspAla 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2944528
56
37
74
88
15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           911964 T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Amend A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    treatment and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Hauf J;
                                      -GAT 2516032
                                                                                                                                                  125
                                                                                                                                                                                                                                                                                                                                                                                                                                                 59
                                                                                                              2516077
                                                                                                                                                                                      2516137
                                                                                                                                                                                                                                                              2516194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2516317
```

```
RESULT 16
ABL41969
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2516031 AATTTAACTTTCCGAGTTTATCCATCTGGAGATAGTGAGTATAGCTTCTATGACGATGTA 2515972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2515731
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2515791
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2515851
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2515911 GTÄGÄTCTTCCAGCAATGGCAGATGAAACAACTATGCAAGTTTTCAGTACGGAACCAACA 2515852
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2515971 AACGGTGGAGAAATGCGTGACATCAGTGTTTCTGAAGACTTTGCAAATGAAAAAGTTTCC 2515912
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       MLR; autoimmune disease; allergic disease; organ rejection; organ transplantation; rheumatism; psoriasis; bronchial asthma; allergic rhinitis; allergic dermatitis; pollinosis; gene;
                                                                                                 Rat or human protein MAY-1 induced by homogeneous blood transfusion and exhibiting immunosuppressive activity in a homogeneous mixed lymphocyte reaction, for providing drug compositions to treat e.g. autoimmune
                                                                                                                                                                                                                                                                                                                                                                                                                                 Rattus sp.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           H4P heavy chain; inter-alpha-inhibitor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MAY-1; blood transfusion; immunosuppressive; mixed lymphocyte reaction; MIR; autoimmune disease; allergic disease; organ rejection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  11-JUN-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ABL41969;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABL41969
                                                                                                                                                                                             Uchida H,
                                                                                                                                                                                                                                                 09-AUG-2000; 2000JP-0241169
                                                                                                                                                                                                                                                                         01-AUG-2001; 2001WO-JP06620
                                                                                                                                                                                                                                                                                                                              WO200212495-A1
                                                                                                                                                                                                                                                                                                   14-FEB-2002.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (MARU-) MARUHO KK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       164 IleAsp-----GinIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuValThrGluGluValValValLeuArgGlyValAsnPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaValCysGlnGluPheValAsnSerVal-----
                                                                                                                                                         2002-217191/27.
DB; ABB09706.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |||
|GCAACAACTGGTTACTACTATGATACTGTACAAAACTTAACATATGTAAAAGCAGCAGCA 2515732
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AGTGTAACAATTGACGGGGCAGATGTAGCTAAAGCAGATACATTAGATGCATTTAACGAA 25157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAGATGCCAAACAAGCAATĆĠŤÁĊŤAAAŤĠĠŤĠŤÁAÁCCAŤĠĊA 2515687
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard;
                                                                                                                                                                                             Tanaka H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        얁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        H4P heavy
                                                                                                                                                                                                                                                                                                                                                                                             16..2814
                                                                                                                                                                                                                                                                                                                                                                   /product=
                                                                                                                                                                                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                      Location/Qualifiers
                                                               47-49;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DNA;
                                                                                                                                                                                                Kitoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2958
                                                             85pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       chain of inter-alpha-inhibitor protein
                                                                                                                                                                                                                                                                                                                                                                    "H4P heavy chain
                                                                                                                                                                                           ĸ
                                                                                                                                                                                                                                                                                                                                                       protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ВP
                                                             Japanese
                                                                                                                                                                                                Fujimura
                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein;
                                                                                                                                                                                               A,
                                                                                                                                                                                                                                                                                                                                                                      оf.
                                                                                                                                                                                                Kobayashi
                                                                                                                                                                                                                                                                                                                                                                      inter-alpha-inhibitor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -PheCysGlnGluGlnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  217
                                                                                                                                                                                                Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -LysAlaIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             163
```

The present sequence encodes the rat H4P heavy chain of inter-alpha-inhibitor protein. The specification describes WAY-1 protein, which is induced by homogeneous blood transfusion. MAY-

immunosuppressive activity

in a

homogeneous

```
ABL41970
ID ABL411
XX ABL41
XX ABL41
XX ABL41
XX III-JU
XX DNA 6
XX MAY-1
KW MLR;
KW OXGAN
KW A1ler
KW A4P h
XX RATTU
XX TOS
FT CDS
FT CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                            용
                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  នន្តន្តន្តន្ត្
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                   organ transplantation; rheumatīsm; psoriasis; bronchial asthma; allergic rhinitis; allergic dermatitis; pollinosis; gene; H4P heavy chain; inter-alpha-inhibitor protein; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1090
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        lymphocyte reaction (MLR). The MAY-1 protein can formulated into drucompositions for the prevention or treatment of autoimmune diseases, allergic diseases, or rejection reaction during organ transplantations; rheumatism, psoriasis, bronchial asthma, allergic rhinitis,
                                                                                            Rattus
                                                                                                                                                                              MAY-1; blood transfusion; immunosuppressive; mixed lymphocyte reaction;
                                                                                                                                                                                                             DNA sequence
                                                                                                                                                                                                                                        11-JUN-2002
                                                                                                                                                                                                                                                                       ABL41970;
                                                                                                                                                                                                                                                                                                ABL41970
                                                                                                                                                                                                                                                                                                                                                             1186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 2958 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           allergic dermatitis and pollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           111
                                                                                                                                                                                                                                                                                                                                                                                         139
                                                                                                                                                                                                                                                                                                                                                                                                                                                  119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        931
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            841
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                                                                                                                                                                  autoimmune
                                                                                                                                                                                                                                                                                                                                                                                      SerIleTyrGlnThrAsnProAsnVal 147
                                                                                                                                                                                                                                                                                                                                                                                                                                        VallleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys
:::||||||||||||||||
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GTGGAACTGCTGGATAAAAGCAACCAGGCTGAGCTACTGCCCTCCAAGAGCGTTTCCCTC 1149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTTCCAAGATC---CCGGCTCAGGGAGGGACCAACATCAATAAAGCAGTGCTATCGGCT 1089
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGTGGGAGCAGTTGCTGGTGCAAGCAACAGAAGAAGATTGAACAGGGCGGTTGACTAT 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIle 92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlnGlyGlyLeuTyrThrPheAlaProTyrSerValileIleProGlnGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TTTGTCATTGATAAAAGCGGATCTATGGCAGGCAAG------AAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAGAC-----CAGTTCAATATCATTGTGTTCAGTGGGGAAGCAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATCCAACAGACCCGAGAAGCCCCTAATCAAGATC-----TTGAAAGACCTCAGCACC 930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                                                                                                                    ATCATCCTGCTCACGGATGGCGAGCCCACTGTGGGG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIle-----
                                                                                           ф
                                                                                                                                                                                                                                                                                                standard; DNA; 2961
                                                                                                                                                                                                                                                                                                                                                            -- GAGACCAATCCCAAGATT
                                                                                                                                                                                                           of H4P heavy chain of inter-alpha-inhibitor protein.
                                                                                                                                                                                                                                          (first
                                                                                                                                                              disease; allergic disease; organ rejection
                                                              Location/Qualifiers
transl_except=
/transl_except=
                                 *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                774 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.42
87.50
42.95%
22.15%
7.82%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 x ABL41969
                                                .2817
                                                                                                                                                                                                                                        entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AsnGln------MetProProGlnAlaAla-----
                                  ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              773
                                                                                                                                                                                                                                                                                                  ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (1-2958)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                759
    (pos:301..304,aa:Leu)
(pos:331..333,aa:Tyr)
                                                                                                                                                                                                                                                                                                                                                            1203
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                652
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2958
33
31
40
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       antation,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  gurb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      35
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         118
```

```
S
                                        밁
                                                                 Ś
                                                                                              밁
                                                                                                                       δ
                                                                                                                                                    밁
                                                                                                                                                                           S
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                g
                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                        뭐
                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                      Best Local
Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 compositions for the prevention or treatment of autoimmune diseases, allergic diseases, or rejection reaction during organ transplantation, e.g. rheumatism, psoriasis, bronchial asthma, allergic rhinitis, allergic dermatitis and pollinosis.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    inter-alpha-inhibitor protein. The specification describes N protein, which is induced by homogeneous blood transfusion. exhibits an immunosuppressive activity in a homogeneous mixed lymphocyte reaction (MLR). The MAY-1 protein can formulated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Claim 7; Page 53-55; 85pp; Japanese.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Rat or human protein MAY-1 induced by homogeneous blood transfusion and exhibiting immunosuppressive activity in a homogeneous mixed lymphocyte reaction, for providing drug compositions to treat e.g. autoimmune
                                          1093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           The present sequence encodes the rat H4P heavy chain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Uchida
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      09-AUG-2000; 2000JP-0241169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                01-AUG-2001; 2001WO-JP06620.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              14-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WO200212495-A1
                                                                                                                                                                                                                                                                                                                        844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       P-PSDB; ABB09707
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (MARU-) MARUHO
              119
                                                                                                                                                     976
                                                                                                                                                                                                            934
                                                                                                                                                                                                                                                                   883
                                                                                                                                                                                                                                                                                                                                                   16
                                                                                                                           93
                                                                                                                                                                                                                                      95
                                                                                                                                                                                                                                                                                             36
ValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys
:::|||||||||||||||
                                                                                                                                                    CAGTGGGAGCAGTTGCTGGTGCAAGCAACAGAAGAGAACTTGAACAGGGCGGTTGACTAT 1035
                                                                                                                                                                                                                                     GlnGlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGly-----
                                                                                                                                                                                                                                                                                            IleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyr 55
                                                                                                                                                                                                                                                                                                                        TTTGTCATTGATAAAAGCGGATCTATGGCAGGCAAG------
                                                                                                                                                                                                                                                                                                                                                  TyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2002-217191/27.
                                          GTGGAACTGCTGGATAAAAGCAACCAGGCTGAGCTACTGCCCTCCAAGAGCGTTTCCCCTC
                                                                                                                                                                               SerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIle
                                                                                                                                                                                                            CAAGAC----
                                                                                                                                                                                                                                                                  ÀTCCAACAGACCCGAGAAGCCCTAATCAAGATC
                                                                                               GCTTCCAAGATC---CCGGCTCAGGGAGGGACCAACATCAATAAAGCAGTGCTATCGGCT 1092
                                                                                                                        PheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                                    Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H, Tanaka H,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            즛
                                                                                                                                                                                                           -----CAGTTCAATATCATTGTGTTCAGTGGGGAAGCAAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product= "H4P heavy chain of inter-alpha-inhibitor
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    774 A;
                                                                                                                                                                                                                                                                                                                                                                             x ABL41970 (1-2961)
                                                                                                                                                                                                                                                                                                                                                                                                                      3.43
87.50
42.95%
22.15%
7.82%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kitoh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ۲
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The specification describes MAY-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Fujimura
                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ဂ္
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       652
                                                                    --MetProProGlnAlaAla---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ą
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ţ,
                                                                                                                                                                                                                                                                  ----TTGAAAGACCTCAGCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kobayashi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0
                                                                                                                                                                                                                                                                                                                                                                                                          2961
33
31
40
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       other;
                                                                                                                                                                                                                                                                                                                         ----AAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MAY-1
                                          1152
                                                                                                                                                                               92
                                                                                                                                                                                                            975
                                                                                                                                                                                                                                                                  933
                                                                                                                                                                                                                                                                                                                                                  35
                                                                                                                                                                                                                                      72
                                                                                                                                                                                                                                                                                                                         882
```

```
ARXSULT 18
AAXX6177
XX
AAXX6177
AC AAXX617
XX
DT 19-JUL
XX
Antige

                                                                                                                                                                                                                                  Best L
Query |
DB:
                                                                                                                                                                                                                                                                                                                                Pred.
Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                      á
  밁
                                           8
                                                                                           밁
                                                                                                                                                                                       US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                      Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Claim 1; Page 174; 275pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New isolated Borrelia burgdorferi nucleic acids - used products for the diagnosis, prevention and treatment of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     22-JUL-1997;
22-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                03-SEP-1997;
20-JUN-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               30-DEC-1998.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Borrelia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Antigenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 19-JUL-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAX61746;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAX61746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1189
                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 1626 BP; 508 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      18-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO9859071-A1
                                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        invention,
                                                                                                                                                                                                                                                            Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             nfection
  926
                                             40
                                                                                                                                           20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 burgdorferi antigenic protein coding
                                                                                                                                                                                                                                                                                                                                                                                                                                                           be used in vaccines for eliciting protective antibodies to members Borrelia genus, particularly for the use against Lyme disease in ans and animals. They can be used for preventing or attenuating an ection caused by a member of the Borrelia genus. The products can alused for detection of members of the Borrelia genus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATCATCCTGCTCACGGATGGCGAGCCCACTGTGGGG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1999-189980/16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerIleTyrGlnThrAsnProAsnVal 147
                                                                                           TATGCCGGAAAAGCCTCCTCGCCAGGAATTTCCTCAAGGCGTCCAGACATTTCTCTCATT
GCTTGAGCCCATCTTGAAGTTGAAT-----CTGCCAAAAGAAGAATATCAAGGC-----
                                      Lys-GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLe 59
                                                                                                                                      TyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIleGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    γď
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAY20049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MEDIMMUNE INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HUMAN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        burgdorferi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Borrelia,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Erwin AL,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      which
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENOME SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 encodes a Borrelia burgdorferi (Bb) protein of the ich is suitable for use in a vaccine. The Bb polypeptides
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGACCAATCCCAAGATT 1206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97US-0057483.
97US-0050359.
97US-0053344.
97US-0053377.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      98WO-US12718
                                                                                                                                                                                    x AAX61746
                                                                                                                                                                                                                                  1.64
87.00
46.00%
30.00%
7.77%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  particularly Lyme
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Hanson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1626
                                                                                                                                                                                                                                                                                                                                                                                                                         217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Lyme disease; infection; detection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MS,
                                                                                                                                                                                                                                                                                                                                                                                                                       Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뫈
                                                                                                                                                                                       (1-1626)
                                                                                                                                                                                                                                                                                                                                                                                                                         355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Lathigra
                                                                                                                                                                                                                                                                                Conservative: Mismatches:
                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                            Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       disease
                                                                                                                                                                                                                                                                                                                                                                                                                       546 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence,
                                                                                                                                                                                                                                  1626
45
24
49
32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    t867.nt.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          to develop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        88
                                                                                           927
                                                                                                                                         39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1188
  878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              of.
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
   RESULT 19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Species specific; genus specific; family specific; probe; de identification; algal; archaeal; bacterial; fungal; parasiti microorganism; diagnosis; translation elongation factor Tu;
                                              The present invention describes a method for generating a repertory of nucleic acids of tuf, fus, atpb and/or recA genes from which probes and/or primers are derived. The method comprises amplifying the nucleic acids of determined algal, archaeal, bacterial, fungal and parasitical species with a combination of defined primer pairs. The method can be
                                                                                                                                                                         Nucleic acid sequences are used to generate universal probes and primers which can be used to identify and detect the presence of algal, archaeal, bacterial, fungal and parasitical species in a test sample -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           translation elongation factor G; RecA recombinase; resistance; catalytic subunit of proton-translocating ATPase; antimicrobia
species with a combination of defined primer pairs. The method can used for producing probes and/or primers for detecting one or more related microorganisms e.g. algae, archaea, bacteria, fungi and parasites, for universal detection and for specific and ubiquitous
                                                                                                                                           Disclosure; Page 806-807; 1580pp;
                                                                                                                                                                                                                                           WPI; 2001-245006/25.
                                                                                                                                                                                                                                                                                       Bergeron
                                                                                                                                                                                                                                                                                                                                                                   28-SEP-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 WO200123604-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Borrelia burgdorferi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Borrelia burgdorferi nucleotide sequence SEQ ID NO:709
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           24-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAH00718;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAH00718
                                                                                                                                                                                                                                                                                                                                                                                                    28-SEP-2000; 2000WO-CA01150.
                                                                                                                                                                                                                                                                          Picard
                                                                                                                                                                                                                                                                                                                                                      19-MAY-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     605
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                665
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               719
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     A---TGCAAAAAGTTCCACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGly-Hi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nValCys-----PheHisVal 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCAGCATTTCGACTTGTAACCTGCTGAAGAACCGTTTTTCCTGCTCCAAAAGGACCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TCTACCACTTCTCCTGCTCGCTCACCACAAGCTGCAATAATC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAA---GATTTGCCGGTTTTTGGATCCATTAATTCG----GGAAATTCTTTAAGAGTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTTCTCTAGCTGCAACTGGCATTGAAGATGTATTACAAATAATACAAGTCCTGTCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     uTyrThrPheAlaProTyrSer-ValIleIleProGlnGly---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAs
                                                                                                                                                                                                                                                                         3
                                                                                                                                                                                                                                                                                                                     INFECTIO DIAGNOSTIC
                                                                                                                                                                                                                                                                                       <u>କ</u>୍ଷ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     standard; DNA; 1656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              primer; ds.
                                                                                                                                                                                                                                                                       Roy
                                                                                                                                                                                                                                                                                                                                                   2000CA-2307010
                                                                                                                                                                                                                                                                                       Boissinot M,
                                                                                                                                                                                                                                                                                                                                                                      99CA-2283458
                                                                                                                                                                                                                                                                          PH;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCATTTGCCTGTAATACTCACCAATAGTAATAGCAGTATAAACAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerTrpAsn---SerCysValAlaGlu-CysAlaValAsnThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    587
                                                                                                                                                                                                                                                                                       Huletsky A,
                                                                                                                                                                                                                                                                                                                       (IDI) INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ВP
                                                                                                                                             English.
                                                                                                                                                                                                                                                                                       Menard
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATPase; antimicrobial;
                                                                                                                                                                                                                                                                                       ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           probe; detection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            parasitical;
                                                                                                                                                                                                                                                                                         Ouellette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACTACATCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               toxin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    606
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 666
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              771
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
```

```
AAX61745/c
ID AAX617
XX
AC AAX617
XX
DT 19-JUL
XX
DE B. bur
XX
DK Antige
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                             RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x AAH00718
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     cc detection and identification of an algal, archaeal, bacterial, fungal cand parasitical species, genus, family and group. A nucleic acid (1) cobtained using the method of the invention can be used for the universal detection of any bacterium, fungus or parasite in a sample and for the control of the standard parasite in a sample and for the comparation of the specific and comparation of streptococcus pneumoniae. Comparation of streptococcus pneumoniae comparation of streptococcus pneumoniae comparation of streptococcus pneumoniae. Comparation of streptococcus pneumoniae comparation of streptococcus pneumoniae comparation of streptococcus pneumoniae. Comparation of streptococcus pneumoniae comparation of streptococcus pneumoniae comparation of streptococcus preumoniae comparation of streptococcus sp., comparation of s
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1016 TATGCCGGAAAAGCCTCCTCGCCAGGAATTTCCTCAAGGCGTCCAGACATTTCTCTCATT
                                                                  B. burgdorferi antigenic protein coding sequence, f867.nt
                                                                                                                                                                                                                     AAX61745
                                                                                                                                                   19-JUL-1999
                                                                                                                                                                                                                                                                                       AAX61745 standard; DNA; 1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 1656 BP; 518 A; 219 C; 361 G; 558 T; 0 other;
   Antigenic protein; vaccine; Lyme disease; infection; detection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20
                                                                                                                                                                                                                                                                                                                                                                                                                                   A---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nValCys-----PheHisVal 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Lys-GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAs 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGly-Hi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis 106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GCTTCTCTAGCTGCAACTGGCATTGAAGATGTATTACAAATAATACAAGTCCTGTCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ------SerTrpAsn---SerCysValAlaGlu-CysAlaValAsnThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 uTyrThrPheAlaProTyrSer-ValIleIleProGlnGly-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTTGAGCCCATCTTGAAGTTGAAT-----CTGCCAAAAGAAGAAGAATATCAAGGC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TyrSerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCAGCATTTCGACTTGTAACCTGCTGAAGAACCGTTTTTCCTGCTCCAAAAGGACCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAA---GATTTGCCCGGTTTTTTGGATCCATTAATTCG---GGAAATTCTTTAAGAGTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   are given in the exemplification of the present invention
                                                                                                                                                                                                                                                                                                                                                                                                             -TGCAAAAAGTTCCACCTT
                                                                                                                                           (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               - CCATTTGCCTGTAATACTCACCAATAGTAATAGCAGTATAAACAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1.69
87.00
46.00%
30.00%
7.77%
                                                                                                                                                                                                                                                                                                                                                                                                                               617
                                                                                                                                                                                                                                                                                       ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1-1656)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1656
45
24
49
32
   88.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 72
```

ঠ

밁

Ś

밁 S 밁 á

밁

밁 δ 밁 5 닭 δ 밁 S

```
밁
                                                                                                             S
                                                                                                                                                                  δ
                                                                                                                                                                                                밁
                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                       맑
                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                               밁
δ
                          밁
                                                  δ
                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                                                                                                                                                                                                                                       1028 GCTTGAGCCCATCTTGAAGTTGAAT-----CTGCCAAAAGAAGAATATCAAGGC----
                                                                                                                                                                                                                                                                                                                1088
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         This sequence encodes a Borrelia burgdorferi (Bb) protein of the invention, which is suitable for use in a vaccine. The Bb polypeptides can be used in vaccines for eliciting protective antibodies to members of the Borrelia genus, particularly for the use against Lyme disease in humans and animals. They can be used for preventing or attenuating an infection caused by a member of the Borrelia genus. The products can also
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 1728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   New isolated Borrelia burgdorferi nucleic acids - us products for the diagnosis, prevention and treatment caused by Borrelia, particularly Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia burgdorferi.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Claim 1; Page 174; 275pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             P-PSDB; AAY20048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1999-189980/16.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            20-JUN-1997;
22-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (HUMA-) HUMAN GENOME SCI INC
                                                                                                                                           932
                                                                                                                                                                                                 979
                            821 TCTACCACTTCTCCTGCTCGCTCACCACAAGCTGCAATAATC-----ACTACATCAACA
                                                                                                                                                                     73
                                                                                                                                                                                                                             59
                                                                                                                                                                                                                                                                                   40
                                                                                                                                                                                                                                                                                                                                           20
                                          GluThrVallleAsnGlnMetProProGlnAlaAlaVallleLeuLeuThrAspGly-Hi 126
                                                                                                                                                                                                                                                                     Lys-GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLe
                                                                                                                                                                                                                                                                                                               TATGCCGGAAAAGCCTCCTCGCCAGGAATTTCCTCAAGGCGTCCAGACATTTCTCTCATT 1029
sAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAs
                                                                                                             LysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis
                                                                                                                                         GCTTCTCTAGCTGCAACTGGCATTGAAGATGTATTACAAATAATACAAGTCCTGTCCATT
                                                                                                                                                                                                                                                                                                                                        TyrSerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAla
                                                                                                                                                                                                                          uTyrThrPheAlaProTyrSer-ValIleIleProGlnGly-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    MEDIMMUNE INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Erwin AL,
                                                                                    GATTTGCCGGTTTTTGGATCCATTAATTCG----GGAAATTCTTTAAGAGTT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           detection of members of the Borrelia genus.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  BP; 544 A; 225 C; 379 G; 580 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            97US-0050359.
97US-0053344.
97US-0053377.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98WO-US12718.
                                                                                                                                                                    ---SerTrpAsn---SerCysValAlaGlu-CysAlaValAsnThrIle
                                                                                                                                                                                                 CCATTTGCCTGTAATACTCACCAATAGTAATAGCAGTATAAACAGAA
                                                                                                                                                                                                                                                                                                                                                                                                  1.8
87.00
46.00%
30.00%
7.77%
                                                                                                                                                                                                                                                                                                                                                                      x AAX61745 (1-1728)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hanson MS,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lathigra
                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                  Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                  1728
45
24
49
32
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    used
nt of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    diseases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  develop
 146
                                                                                                              106
                                                                                                                                                                                                 933
                             768
                                                                                    822
                                                                                                                                           873
                                                                                                                                                                     98
                                                                                                                                                                                                                             72
                                                                                                                                                                                                                                                        980
```

```
RESULT 21
AAX20248/c
                                                                      Best L
Query
DB:
                                                                                                                              Alignment
Pred. No.:
                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                      Ş
Db 818939
                                              US-10-034-500-2
                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                   AAX20248 to AAX20402 represent polynucleotide sequences isolated from Borrelia burgdorferi (Bb). Products derived from Bb can be used for the detection, diagnosis, characterisation, prevention and therapy of Bb infections, e.g. Lyme disease. They can also be used for the production of biosynthetic products, e.g. enzymes. Borrelia belongs to a family of motile, spiral-shaped bacteria called Spirochetes. Spiral-shaped bacteria called Spirochetes. Spiral-shaped bacteria causes epidemic and endemic relapsing fever, and Lyme borreliosis, more commonly known as
                                                                                                                                                                 Sequence 910715
                                                                                                                                                                                                                                                                                                               Claim 1;
                                                                                                                                                                                                                                                                                                                                              New isolated Borrelia burgdorferi nucleic acids - used to develop products for the detection, diagnosis, characterisation, prevention
                                                                                                                                                                                                                                                                                                                                                                                    WPI; 1999-081217/07.
                                                                                                                                                                                                                                                                                                                                                                                                                    Clayton R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           20-JUN-1997;
22-JUL-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   03-SEP-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          18-JUN-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 30-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO9858943-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Borrelia burgdorferi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Borrelia burgdorferi; spirochete; bacterium; pathogen; I epidemic relapsing fever; endemic relapsing fever; Lyme infection; diagnosis; characterisation; detection; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Borrelia burgdorferi polynucleotide sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAX20248;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAX20248
                                                                                                                                No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       767
                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HUMA-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           707
                                                                                  Match:
                      20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           A---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 nValCys----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGCCGGAAAAGCCTCCTCGCCAGGAATTTCCTCAAGGCGTCCAGACATTTCTCTCATT 818880
                   TyrSerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAla
                                                                                                                                                                                                                                                                                                                                                                                                            OR;
                                                                                                                                                                                                                                                                                                                                                                                                                                                         HUMAN GENOME SCI INC
                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIMMUNE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             standard; DNA;
                                                                                                                                                                                                                                                                                                              Page 157-671; 1128pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TGCAAAAAGTTCCACCTT 689
                                               (1-218)
                                                                                                                                                                                                                                                                                                                                       С
Н
                                                                                                                                                                                                                                                                                                                                                                                                                     Dougherty
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              97US-0050359.
97US-0053344.
97US-0053377.
                                                                                                                                                                                                                                                                                                                                   he detection, diagnosis, characterisation, infections, particularly Lyme disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   97US-0057483
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          98WO-US12764
                                                                                                                                                                 ₽₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PheHisVal
                                                                     46.00%
30.00%
7.77%
20
                                                                                                                   1.74e+04
87.00
                                              x AAX20248 (1-910715)
                                                                                                                                                                 327171 A;
                                                                                                                                                                                                                                                                                                                                                                                                                        BA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             910715
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 151
                                                                                                                                                                                                                                                                                                                                                                                                                        Fraser
                                                                                                                                                                    129646
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ВP
                                                                                Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                        ņ
                                                                                                                   Length:
Matches:
                                                                                                                                                                 Ç
                                                                                                                                                                                                                                                                                                                                                                                                                        Lathigra
                                                                                                                                                                   130753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #
                                                                                                                                                                 <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                        ₽,
                                                                      24
49
10
10
                                                                                                                              910715
                                                                                                                                                                   323091
                                                                                                                                                                                                                                                                                                                                                                                                                        Smith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Lyme disease;
e borreliosis;
                                                                                                                                                                   H,
                                                                                                                                                                                                                                                                                                                                                 prevention
                                                                                                                                                                                                                                                                                                                                                                                                                        Ю;
                                                                                                                                                                    54
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
    RESULT 22
AAS92979/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Db 818558 A---TGCAAAAAGTTCCACCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       818618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               818672
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          818723
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                818783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          818830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  818879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human; chromosome mapping; gene mapping; gene therapy; food supplement; medical imaging; diagnostic; genetic of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAS92979
polypeptide (II) sequences. (I) is useful as hybridisation probes, polypeptide (II) sequences. (I) is useful as hybridisation probes, polymerase chain reaction (PCR) primers, oligomers, and for chromosome and gene mapping, and in recombinant production of (II). The polynucleotides are also used in diagnostics as expressed sequence tags for identifying expressed genes. (I) is useful in gene therapy techniques
                                                                                                                                           New isolated polynucleotide and encoded polypeptides, useful in diagnostics, forensics, gene mapping, identification of mutations responsible for genetic disorders or other traits and to assess
                                                                                                                                                                                                                                                                                                           31-MAR-2000;
23-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                     30-MAR-2001; 2001WO-US08631
                                                                                                                                                                                                                                                                                                                                                                                   11-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                          Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DNA encoding novel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13-FEB-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAS92979;
                                                                                                                                                                                                         P-PSDB;
                                                                                                                                                                                                                                                 Drmanac RT, Liu C,
                                                                        The invention relates to isolated polynucleotide (I) and
                                                                                                   Claim 1; SEQ ID No
                                                                                                                                  biodiversity
                                                                                                                                                                                                                                                                                (HYSE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             73
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCTTGAGCCCATCTTGAAGTTGAAT-----CTGCCAAAAGAAGAAGAATATCAAGGC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Lys-GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nValÇys-----PheHisVal 151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCTACCACTTCTCCTGCTCGCTCACCACAGCTGCAATAATC----ACTACATCAACA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTTCTCTAGCTGCAACTGGCATTGAAGATGTATTACAAATAATACAAGTCCTGTCCATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGly-Hi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TCAGCATTTCGACTTGTAACCTGCTGAAGAACCGTTTTTCCTGCTCCAAAAGGACCCGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  sAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   uTyrThrPheAlaProTyrSer-ValIleIleProGlnGly-------
                                                                                                                                                                                                                        2001-639362/73
                                                                                                                                                                                                                                                                                HYSEQ INC.
                                                                                                                                                                                                         ABG28792.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        - GATTTGCCGGTTTTTGGATCCATTAATTCG---GGAAATTCTTTAAGAGTT---
                                                                                                                                                                                                                                                                                                           2000US-0540217.
2000US-0649167.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -CCATTTGCCTGTAATACTCACCAATAGTAATAGCAGTATAAACAGAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -SerTrpAsn---SerCysValAlaGlu-CysAlaValAsnThrIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 human diagnostic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CDNA; 1404
                                                                                                     28783;
                                                                                                                                                                                                                                                 Tang
                                                                                                   103pp; English.
                                                                                                                                                                                                                                                   ΥŢ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               818540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    #28783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       forensic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             818784
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          818559
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               126
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          818673
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   818724
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        72
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     818831
```

```
RESULT 23
AAA52180
ID AAA52
XX AAA52
AC AAA52
XX 11-SE
XX DNA e
XX DNA e
XX Matux
KW non-t
KW recom
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Best Local S.
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x AAS92979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         to restore normal activity of (II) or to treat disease states involving (II). (II) is useful for generating antibodies against it, detecting or quantitating a polypeptide in tissue, as molecular weight markers and as a food supplement. (II) and its binding partners are useful in medical imaging of sites expressing (II). (I) and (II) are useful for treating disorders involving aberrant protein expression or biological activity. The polypeptide and polynucleotide sequences have applications in classomatics, forensics, gene mapping, identification of mutations or diagnostics, forensics, gene mapping, identification of mutations or responsible for genetic disorders or other traits to assess biodiversity and to produce other types of data and products dependent on DNA and diagnostic coding sequences. AAS64197-AAS94564 represent novel human diagnostic coding sequences of the invention.

Note: The sequence data for this patent did not appear in the printed specification, but was obtained in electronic format directly from WIPO at fire wipo.int/pub/published_pct_sequences.
  Mature HMW protein; hmw gene; hmwAl; non-typeable Haemophilus influenzae; recombinant production; Escherichia (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1314
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                  1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1065
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1200
                                                                                                                                              11-SEP-2000
                                                                                                                                                                                           AAA52180
                                                                                                                                                                                                                                    AAA52180 standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1254
                                                                                             DNA encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 1404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         No
:
                                                                                                                                                                                                                                                                                                                                    972
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TTTTTACCGTTTTCTGTTGTTCTGCCGCAAAACGGATGGAACCCTCTTTCAGGGATTTCA 1255
                                                                                                                                                                                                                                                                                                                                    CTCATATCCTGC
                                                                                                                                                                                                                                                                                                                                                                                 SerValPheCys 198
                                                                                                                                                                                                                                                                                                                                                                                                                             ATACCAGACGAAGTTTGCGCTTCGGCAAACGCGCCCATCGCATTGAGTTTGTGGCG 973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GAACCGTCGTACTGTTTCGGCGGATCGAGGCAGATATCGCAGTTCCCGCCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TyrGlnThrAsnProAsnValCysPhe------HisValValSerPhe-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACGACCAATGGTGGAAAGGGCAATCTGAGCATCGGT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIle 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCCGTTATCGGCAAATTCACGGGCGATGCGAATAATCTGGCTCGAGAAACGCCG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAla---Glu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIle 140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----CAACACGAATCACTTCCACCACATAACCCATCCCAACCGCTGATTCAC 1153
e Haemophilus influenzae; NTHi; non-encapsulated; production; Escherichia coli; antibacterial; vaccine
                                                                                           H. influenzae strain K1 mature hmwlA,
                                                                                                                                            (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            BP;
                                                                                                                                                                                                                                                                                                                                    961
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         288 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1.53
86.50
34.03%
24.31%
7.73%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       384 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----CTTCGCCAAAATAGTTCAGCA
                                                                                                                                                                                                                                       ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-1404)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         420 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                      hmwA2; high molecular weight; NTHi; non-encapsulated;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         312
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1404
35
14
62
33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         other;
                                                                                             SEQ ID NO:36.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            194
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1066
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1117
```

5 문 S

밁

Alignment Scores:

3667

BP;

1347

P

736

ũ 722 ច 862

T; 0 other

δ 밁 ð 밁 δ 밁 Ś 맑 8 밁 á 밁

```
CC promoter functional in E. coli (e.g., the TT) promoter) operably linked cto a modified hmwABC operon from a non-typeable (non-encapsulated) H. CC influenzae (NTHi). Most HMW-expressing NTHi strains contain two hmw gene clusters termed hmwHABC and hmwABC. Each hmwABC operon comprises hmwA, community and hmwC genes. The hmwA genes encode the structural HMWA proteins can death hmwABC operon comprises hmwA, comprises hmwA. The modified hmwABC operon used in the expression construct of the invention contains an A gene modified such that it encodes only the mature HMWA. The invention also discloses hmwA genes (AAA52175-A52198) and HMWA proteins (AAB01824-B01849) from the non-typeable H. influenzae strains Joyc, K1, K21, LCDC2, PMH1, 15 and 12. The nucleic acids and cotors are used for the production of recombinant H. influenzae HMW cotors are used for the production of recombinant H. influenzae HMW cotors are used for the production of recombinant H. influenzae (call-mediated immune response to provide protection against diseases in the proteins which can be used as vaccines to mediate a humoral or combinant transheobronchitis). The HMW proteins are also useful as antigens in immunoassays for detecting antibodies against Haemophilus, the proteins and/or HMW peptides. The nucleotide sequences encoding the month of the encoding the sequence represents a modified NTHi hmwA genes from other constructions. The present sequence represents a modified NTHi hmwA gene encoding a mature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 The invention relates to the recombinant production of Haemophilus influenzae high molecular weight (HMW) proteins in Escherichia coli. The expression construct used to effect recombinant expression comprises a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nucleic acid molecule for producing recombinant high molecular proteins of Haemophilus which are used as a vaccine to provide protection against Haemophilus induced diseases in humans -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            07-OCT-1998;
08-DEC-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       human disease; otitis media; epiglottitis; pneumonia; tracheobronchitis; detection; diagnosis; ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              07-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Haemophilus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim 7; Fig 20A-R; 307pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               WO200020609-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (CONN-) CONNAUGHT LAB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2000-303789/26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAB01830, AAB01831
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ×S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           influenzae strain K1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Yang Y,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     98US-0167568
98US-0206942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99WO-CA00938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /*tag= ]
/partial
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 product= "Haemophilus influenzae strai
full-length HMWIA (AAB01830)
note= "No initiation codon given in th
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           transl_except= (pos:919..920, aa:Gly)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ..941
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LTD.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Klein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ъ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Œ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               strain
01830) "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     specification"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       K1 mature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 given in the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  weight
```

```
AAA52179
ID AAA5
XX
AC AAA5
XX
AC 11-5
XX
                                                                                                                                                                                                          망
                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-034-500-2 (1-218) x AAA52180
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity:
Query Match:
                                                                                                              RESULT 24
                                                                                                                                             밁
                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
                                                                                                                                             1700
                                                                                                                                                                                                                                                                                                                                                                                                                                                              1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1163
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1103
                   11-SEP-2000
                                                                                                                                                                                                             1640
                                                                                                                                                                                                                                                                         1580
                                                                                                                                                                                                                                                                                                                                                                                                   1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No.:
                                                  AAA52179;
                                                                               AAA52179 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       983
                                                                                                                                                                                                                                                                                                                                                                    175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
                                                                                                                                                                            206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TCGACACACGCCGCTTTTACAATAAAAAATGATTTAAATTTTAAATGCCACTGGGGGCAAT 1102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAGAGTCACAAAACTTTAGTGCCTCAGGAGGGTCAAGCTTAAAATTCAAAAGCGAAGGT 1042
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAla 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATATCATTGAACCAAGTTGCAGGTATTGATAGTAATCTCAAAAAAAGCCCTTATAGCCAAT 1162
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCTAATCCAAATTACAGCTTTAACGTATCCGGCCTATTTGACAACCAAGGCAAGTCAAAC 1465
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ThrAsnProAsnValCysPheHisValValSerPheAlaAspAsp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCAAAGGTAATATTACTGTTAAAGAAGGAGCC---AATGTCACCCTTCGTAGCGCGAAT 1279
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAAACATAACCTTTGAAGGGGGCAATATCACCCTTGCAGCCGATAAAAAACCAATAGAA 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla----------
                                                                                                                                                                         GluGluValValValLeuArgGlyValAsn 215
                                                                                                                                                                                                                                                                                                                                     CTGAATATTACCACTAAATCCGACTCCAACCACCATACTATTATAAAGGGTAATATAACT
                                                                                                                                                                                                                                                                                                                                                                    ValLeuVal------
                                                                                                                                                                                                                                                                                                                                                                                                  ATTTCCATCGCTAAGGGAGGAGCTATTTTTAAAGATATCGAG-----AATACTGGCAGT 1519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACCGGCTCCGCTATCAATATAGAAAAAATCTTACCGTTGAAGGTAGTGCTAAGTTTTTA 1405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGGTAATGACAAATCAGCTTTAAGTATAAGAAGGAAATGTCACTAATAAAGGCAAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ---ProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla 82
                                                                                                                                             GAGCGGATAACAATCAAAGCAGGCGTTAAT 1729
                                                                                                                                                                                                             GGCAATATCTCGCAAAAAGAAGGCAATCTCACAATTTCTTCTGATAAAGTCAATATTACC
                                                                                                                                                                                                                                        ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr
                                                                                                                                                                                                                                                                       AACAGAAAAGGTGATTTAAATATCACGAATAATGGTGATAATACTGAAAATCCAAATTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                        -----AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----LysIleAsnAlaAlaMet
                   (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             7.19
86.00
31.85%
17.78%
7.69%
                                                                               DNA;
                                                                               3685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----CTCACCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (1-3667)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gaps:
                                                                                                                                                                                                                                                                                                      ----AspGlyLeuGlnLeuLeuGlnAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3667
48
38
98
98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1336
                                                                                                                                                                                                                                                                       1639
                                                                                                                                                                                                                                            205
                                                                                                                                                                                                                                                                                                      185
                                                                                                                                                                                                                                                                                                                                     1579
                                                                                                                                                                                                                                                                                                                                                                                                                               174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      44
                                                                                                                                                                                                                                                                                                                                                                    177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             157
```

```
Haemophilus influenzae strain K1 defective hmwlA gene,
                                                                SEQ
                                                                ij
                                                                NO:33.
```

HMW protein; hmw gene; hmwAl; hmwA2; high molecular weight; non-typeable Haemophilus influenzae; NTHi; non-encapsulated; recombinant production; Escherichia coli; antibacterial; vaccine; human disease; otitis media; epigiottitis; pneumonia; tracheobronchitis; detection; diagnosis;

Haemophilus influenzae strain 7

```
13-APR-2000
                              WO200020609-A2
                                                                          /*tag= a
/partial
/parduct= "Haemophilus influenzae strain
/product= "HMW1A (AAB01828)"
/note= "No initiation codon given in the
/transl_except= (pos:937..938, aa:Gly)
                                                                       /note= "No initiation or termination codon
                                                                                                                                                                                                                                                                        Location/Qualifiers
                                                                                                                                   '*tag= b
                                                                                                                                                   . . 959
                                                                                                                                                                                                                                                          ..3685
                                                          specification"
                                                                                                                                                                                specification"
                                                                                                                                                                                                               K1 full-length
                                                                        given
```

07-OCT-1999; 99WO-CA00938

07-OCT-1998; 08-DEC-1998; 98US-0167568. 98US-0206942.

(CONN-) CONNAUGHT LAB LTD

, MS Yang Y, ĭ

P-PSDB; 2000-303789/26 AAB01828, AAB01829

Nucleic acid molecule for producing recombinant high molecular proteins of Haemophilus which are used as a vaccine to provide protection against Haemophilus induced diseases in humans weight

Claim 12; Fig 20A-R; 307pp; English.

The invention relates to the recombinant production of Haemophilus CC influenzae high molecular weight (HMW) proteins in Escherichia coli. The CC expression construct used to effect recombinant expression comprises a CC promoter functional in E. coli (e.g., the T7 promoter) operably linked CC to a modified hmwABC operon from a non-typeable (non-encapsulated) H. CC influenzae (NTH1). Most HMW-expressing NTH1 strains contain two hmw gene CC clusters termed hmwLABC and hmw2ABC. Each hmwABC operon comprises hmwA, CC hmwB and hmwC genes. The hmwA genes encode the structural HMWA proteins are the invention strains of the HMWA proteins which are contains. The modified hmwABC operon used in the expression construct of the invention contains an A gene modified such that it encodes only the cm the invention also discloses hmwA genes (AAAS2175-A52198) CC and HMWA proteins (AAB01824-B01849) from the non-typeable H. influenzae trains Joyc, KI, KZ1, LCDC2, PMH1, 15 and 12. The nucleic acids and cell-mediated immune response to provide protection against diseases in humans caused by H. influenzae (e.g., otitis media, epiglottitis, cell-mediated immune response to provide proteins are also useful as antigens in immunoassays for detecting antibodies against Haemophilus, construct construct some bused to isolate and clone hmw genes from other constructed servains of Haemophilus via hybridisation reactions. The constructed as trains of Haemophilus via hybridisation reactions af Haemophilus via hybridisation reactions af Haemophilus of the provide servains of Haemophilus via hybridisation reactions. The present sequence represents an hmwA gene from a non-typeable strain of H

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
RESULT 25
AAL40781
ID AAL40
                                                      S
                                                                           밁
                                                                                           δ
                                                                                                               밁
                                                                                                                                 ş
                                                                                                                                                     밁
                                                                                                                                                                   ક
                                                                                                                                                                                       밁
                                                                                                                                                                                                          र्
                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                          ક
                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                               ક
                                                                                                                                                                                                                                                                                                                                                                                    명
                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                               멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SXS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                       1718
                                                                           1658
                                                                                                                1598
                                                                                                                                                                                           1484
                                                                                                                                                                                                                                 1424
                                                                                                                                                                                                                                                                       1364
                                                                                                                                                                                                                                                                                                                                                  1298
                                                                                                                                                                                                                                                                                                                                                                                       1241
                                                                                                                                                                                                                                                                                                                                                                                                                            1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1001
AAL40781 standard; DNA; 88421
                                                                                                                                                                                                                                                                                                            1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 influenzae.
                                                                                                                                                                                                                                                                                                                             103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1061 TCGACACGCCGCTTTTACAATAAAAATGATTTAATTTTAAATGCCACTGGGGGCAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ĕ
                                                                                                                                                                                                                                                                                                                                                                   83
                                                                                                                                                                                                                                                                                                                                                                                                          64
                                                                                                                                                                                                                                                                                                                                                                                                                                              51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeu------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetMetLysHisValAla
                                      GAGCGGATAACAATCAAAGCAGGCGTTAAT 1747
                                                        GluGluValValValLeuArgGlyValAsn 215
                                                                           GGCAATATCTCGCAAAAAGGAAGGCAATCTCACAATTTCTTCTGATAAAGTCAATATTACC
                                                                                           ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr
                                                                                                               AACAGAAAAGGTGATTTAAATATCACGAATAATGGTĞATAATACTGAAATCCAAATTGGC
                                                                                                                                                    CTGAATATTACCACTAAATCCGACTCCAACCACCATACTATTATAAAGGGTAATATAACT
                                                                                                                                                                        ValLeuVal------
                                                                                                                                                                                         ATTTCCATCGCTAAGGGAGGAGCTATTTTTAAAGATATCGAG-----AATACTGGCAGT
                                                                                                                                                                                                                                GCTAATCCAAATTACAGCTTTAACGTATCCGGCCTATTTGACAACCAAGGCAAGTCAAAC
                                                                                                                                                                                                                                                 ThrasnProasnValCysPheHisValValSerPheAlaAspAsp-------
                                                                                                                                                                                                                                                                    ACCGGCTCCGCTATCAATATAGAAAAAATCTTACCGTTGAAGGTAGTGCTAAGTTTTTA
                                                                                                                                                                                                                                                                                        ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln
                                                                                                                                                                                                                                                                                                                             IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu
                                                                                                                                                                                                                                                                                                                                                 TATGGTAATGACAAATCAGCTTTAAGTATAAGAGGAAATGTCACTAATAAAGGCAAT---
                                                                                                                                                                                                                                                                                                                                                          ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly
                                                                                                                                                                                                                                                                                                                                                                                    ATCANAGGTAATATTACTGTTAAAGAAGGAGCC---AATGTCACCCTTCGTAGCGCGAAT 1297
                                                                                                                                                                                                                                                                                                                                                                                                                          AAAAACATAACCTTTGAAGGGGCAATATCACCCTTGCAGCCGATAAAAAAACCAATAGAA ::240
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATAGAGTCACAAAACTTTAGTGCCTCAGGAGGGTCAAGCTTAAAATTCAAAAGCGAAGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                            ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla---------
                                                                                                                                                                                                                                                                                                                                                                                                     -ProTyrSerVallleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla
                                                                                                                                                                                                            -----AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3685
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------LysIleAsnAlaAlaMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1353
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               x AAA52179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.25
86.00
31.85%
17.78%
7.69%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              737
 ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (1-3685)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                  -----AspGlyLeuGlnLeuLeuGlnAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             867
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ŧ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3685
48
38
98
98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              other;
                                                                                                                                                                                                                                                                                                          -CTCACCGTT :363
                                                                                             205
                                                                                                               1657
                                                                                                                                  185
                                                                                                                                                                                         1537
                                                                                                                                                                                                                                                                     1423
                                                                                                                                                                                                                                                                                        142
                                                                                                                                                                                                                                                                                                                             1,22
                                                                                                                                                                                                                                                                                                                                                :354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1060
                                                                                                                                                                       177
                                                                                                                                                                                                                                                  :57
                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       44
Ramoplanin; ramoplanin biosynthetic pathway polypeptide; antibiotic; biosynthesis gene cluster; bioengineering; peptide synthetase module adenylation domain; hydroxyphenylglycine; HPG; antibiotic precursor; chlorinate; lipdepsipeptide; gene; ds.
CDS
                            CDS
                                                                                                               CDS
                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                        CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CDS
                                                                                                                                                                                                                                SgS
                                                                                                                                                                                                                                                                                         gg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Actinoplanes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                88421nt genomic DNA of ramoplanin producing Actinoplanes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    03-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAL40781;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               dB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                          /product=
                                                                                                            /product= "Protein 66546..67370
/product= "Protein of ORF complement (73439..71964)
                                                                                                                                                                                                                                                                                                                                               /*tag= g
/product= "Protein of ORF
complement (12751..10829)
                                                                                                                                           65826..66530
                                                                                                                                                                                                                                                                                       /product= "Protein of ORF complement (15203..13614)
                                                                                                                                                                                                                                                                                                                     complement
                                                                                                                                                                                                                                                                                                                                                                                                        complement
                                                                                                                                                                                                                                                                                                                                                                                                                                    complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Location/Qualifiers
                         0659..71906
                                     product= "Protein
                                                                                            product= "Protein"
                                                                                                                                                    "cag= n
product= "Protein
                                                                                                                                                                                                                                                                      product=
                                                                                                                                                                                                                                                                                                                             product= "Protein of
                                                                                                                                                                                                                                                                                                                                                                                                                 product= "Protein of
                                                                                                                                                                                                                                                                                                                                                                                                                                             product= "Protein of ORF"
                                                                                                                                                                                                                                                                                                                                                                                                                                                               product= "Protein of Complement (6665..5814)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               product= "Protein of
                                                                                                                                                             *tag=
                                                                                                                                                                                product= "Protein
                                                                                                                                                                                                                                         product= "Protein
                                                                                                                                                                                                                                                           5591..15863
                                                                                                                                                                                                                                                                                                                                                                                     product= "Protein of ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           038..5048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    product= "Protein
                                                                                                                                                                                                                                                                                                                                                                            691..10761
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              *tag= b
                                                                                                      *tag=
                                                                                                                                                                      9713..65800
                                                                                                                                                                                                  9032..39713
                                                                                                                                                                                                            product= "Protein of
                                                                                                                                                                                                                              5880..19035
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       118..4032
                                                                "Protein
                                                                                                                                                                                                                                                                     "Protein
                                                                                                                                                                                                                                                                                                                    (13617..12802)
                                                                                                                                                                                                                                                                                                                                                                                                       (9464..8130)
                                                                                                                                                                                                                                                                                                                                                                                                                                   (7703..6693)
                                     of.
                                                                                                                                                                                                                                         of.
                                                                                                                                                                                                                                                                     of.
                                                                e
f
                                                                                            0£
                                                                                                                        о
f
                                                                                                                                                     o
f
                                                                                                                                                                                 œ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of.
                                                                                                                                                                                                                                                                                                                                                                                                                ORF
         ORF
                                                                                                                                                                                                                                                                                                                              ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ORF
                                     ORF
                                                                                                                                                                                                                                        ORF
                                                                                                                                                                                                                                                                     ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORF
                                                                                             ORF
                                                                                                                                                                                 ORF
                                                                                                                                                                                                             ORF
                                                                 ORF
                                                                                                                         욙
                                                                                                                                                     OR F
         19"
                                                                 17"
                                                                                                                          15
                                                                                                                                                                                 13
                                                                                                                                                                                                                                          11 "
                                                                                                                                                                                                                                                                                                  9
                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                           7,
                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                 ຜູ
                                                                                                                                                                                                                                                                                                                                                                                                                                              4.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ω
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ۲,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1
```

```
Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
         The invention relates to an isolated ramoplanin biosynthetic pathway polypeptide selected from a polypeptide of open reading frames (ORF) 1-32. The isolated polypeptides are useful for chemically modifying a biological molecule that is a substrate for a polypeptide encoded by \varepsilon
                                                                                          Novel isolated chemically modi
                                                                                                                       P-PSDB; AA022146, AA022147, AA022148, AA022149, AA022150, AA022151, AA022152, AA022153, AA022154, AA022155, AA022155, AA022156, AA022155, AA022158, AA022159, AA022169, AA022169, AA022169, AA022169, AA022169, AA022169, AA022169, AA022171, AA022171, AA022173, AA022174, AA022175, AA022177, AA0221774, AA022175, AA0221776, AA0221777, AA0221778.
                                                                                                                                                                                                                                      13-OCT-2000; 2000US-239924P.
12-APR-2001; 2001US-283296P.
24-JUL-2001; 2001US-0910813.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sac
                                                                                                                                                                                                                     (ECOP-)
                                                                                                                                                                             2002-435445/46.
                                                                                                                                                                                                Š
                                                                                                                                                                                                                    ECOPIA BIOSCIENCES
                                                                                ated ramoplanin biosynthetic pathway po
modifying biological molecule that is
e encoded by a ramoplanin biosynthesis
                                                                                                                                                                                                Zazopoulos E,
                                                                                                                                                                                                                                                                                 2001WO-CA01462
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product= "Protein of ORF complement (79864..78107)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product= "Protein of ORF
complement (74216..73563)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        complement
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   /product= "Protein of ORF complement (81624..79861)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /product= "Protein of ORF
complement (78110..76449)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             complement (75424..74213)
                                                                                                                                                                                                                                                                                                                                                                    /product= "Protein
87494..88420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      product= "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 /product= "Protein
                                                             87-135;
                                                                                                                                                                                                                                                                                                                                                                                                          *tag= ae
product= "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                        product= "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                          14481..85548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     product= "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             5535..76464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         product= "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2587..84446
                                                                                                                                                                                                                                                                                                                                                               7494..88420
                                                                                                                                                                                                                                                                                                                                                                                                                             556..86845
                                                                                                                                                                                                                                                                                                                                                                                               372..86803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      duct= "Protein of ORF
lement (81909..81682)
                                                            212pp;
                                                                                                                                                                                                                                                                                                                                              "Protein of ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   "Protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       'Protein of ORF (82346..82062)
                                                                                                                                                                                                Staffa A;
                                                            English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0f
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0
Fi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      of ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                        0f
                                                                                                                                                                                                                                                                                                                                                                             of,
                                                                                                                                                                                                                                                                                                                                                                                                          о́£
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     of
fi
                                                                                                                                                                                                                                                                                                                                                                                                           ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                        ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ORF
                                                                                                                                                                                                                                                                                                                                                                             ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ORF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  271
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           23 "
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          22
                                                                               polypeptide useful
is a substrate for a
is gene cluster -
```

þ for

149

PheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal

-GCCCGCACGCGTTTGATGCGTCGTCGTATGAGATC----TGGGTGCCG

169

TTCCAT---

AlaLeuAsnSerGlySerValLeuVal

177

TTGTTGAATGGCGGCACGGTCGTGGTC

```
cc ramoplanin biosynthesis gene cluster, by contacting the biological collecule with the isolated polypeptide, where the polypeptide chemically commodifies the biological molecule. The method comprises contacting the biological molecule with at least two different polypeptides encoded by ramoplanin ORFs 1-31. The polypeptides are useful for directing the cluster comprising the ORFs is useful as a substrate for compositing the cluster comprising the ORFs is useful as a substrate for concoding nucleic acid sequence is useful for generating derivatives of contacting nucleic acid sequence is useful for generating derivatives of continuous conjunction of the peptide class. The isolated polypeptides are useful for synthesis of ramoplanin in vivo or in vitro, as an adenylation domain in conjunction with other peptide synthetase modules and allowing the incorporation of Thr into a peptide synthetase modules and allowing the class. The isolated polypeptides are useful for gentled antibiotic structure, for production of an hydroxyphenylglycine (HPG)-containing peptide antibiotic, for enhancing secretion of consuplanin or its variants and derivatives, for enhancing uptake of consuplanin products or its variants or derivatives, to chlorinate HPG of a peptide antibiotic precursor, and for designing specific nucleotide producing microorganisms. This polynucleotide sequence represents the sequence represents the invention.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                  Ś
                                                                       밁
                                                                                                        Ś
                                                                                                                                                밁
                                                                                                                                                                               Ş
                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                        Š
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                30201 AGCCTGGTGGCGGCCGGTGTGGGTGTGGAGTCGCCG---GTGGTGGTGGCGTTGGAGCGG
                                                                                                                                                                                                                                                                                                                                                                        30258
                                                                                                                                                                                                                                                                                               30312
                                                                                                                                                30432
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 88421
                                    130
                                                                                                            121
                                                                                                                                                                                     103
                                                                                                                                                                                                                                                                                                                                    63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    23
                                                                                                                                                                                                                                                          83
                                                                                                                                                                                                                                                                                                                                                                                                             43
                                                                                                                                                                                                                                                                                               GTTCCGGTGGACCTTTCGTGGCCGCAGGCGCGTATCGATGCGGTGGTTGCTGACTGTGCC 30371
                                                                                                                                                                                                                                                                                                                                AlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SermetmetLysHisValAlaValArgGluProLysIleGluLeuAlaLysGluAla 42
                                                                                                            LeuLeuThrAspGly-----
                                                                                                                                                IleLysMetHisGluThrValIleAsnGlnMetPro---ProGlnAlaAlaValIle---
                                                                                                                                                                                                                                                        ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                      TCTCCCGAGGTGCTGTCCGCGTTCCTGGCGGTGGCGAAGGCCGGGGGGCGTG
                                                                                                                                                                                                                                                                                                                                                                                                           IleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPhe
 -----GTGGATTTGGCGACCGACACGTGTTGGGGTCCGACCCCGCGGGTGTTG
                                  GlyMetAsnProValGlu---GluValLysSerIleTyrGlnThrAsnProAsnValCys 148
                                                                         Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             BP; 10639 A; 32391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x AAL40781 (1-88421)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              760
86.00
41.42%
26.63%
7.69%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>;</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              32663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12728
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              88421
45
25
75
24
                                                                                                               ---HisAsnAsnLeu 129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0 other;
                                                                                                                                                                                                                                                                                                                                         82
                                                                                                                                                                                                                                                                                                                                                                            30311
                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                             30551
     30599
```

```
RESULT 26
ABQ69245/c
ID ABQ692
XX ABQ692
XX ABQ692
XX ABQ692
XX Antiba
KW Infect
XX Inster
XX Inster
XX W02002
XX W02002
XX (INSP
PP 04-OCT
XX (INSP
PP 04-OCT
XX (INSP
PP A (CNRS
XX (INSE
PI Kunst
XX WPI; 2
XX WPI; 2
XX WPI; 2
XX Contar
CC CONTAR
                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
Query Match:
DB:
В
                                                      ફ
                                                                                                                밁
                                                                                                                                                                          S
                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x ABQ69245 (1-3011208)
                                                                                                                                                                                                                             2563623 AATGGGAAATCTATGATGCGTCAAATGGCTATGGATTATCCAGAA------
2563578
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           gene expression. Proteins encoded by the nucleic acid sequences can be used to screen for compounds that modulate gene expression, replication and pathogenicity of Listeria (potential therapeutic agents), also for
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              The present invention relates to nucleic acid sequences (ABQ67188-ABQ71212) from Listeria sp. The sequences are useful as probes (ABQ67188-ABQ71212) and primers for identification and/or detection of Listeria (e.g. as
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 3011208 BP; 941651 A; 568176 C; 559189 G; 942192 T; 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Note: The sequence data for this patent did not form part of the printed specification, but was obtained in electron
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          anti-Listeria vaccines.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     treating infections by Listeria, and are useful as immunogens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   contaminants in foods, or mutational analysis) and for analysis of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Claim 5; SEQ ID 2058; 180pp; French.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    antibodies and modulators
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          New genomic sequences from Listeria species, useful treatment and prevention of infection, also related
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WPI; 2002-332479/37.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kunst F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       04-OCT-2000; 2000FR-0012697.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              04-OCT-2001; 2001WO-FR03061
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              11-APR-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200228891-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Listeria innocua.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Antibacterial; Listeria;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Listeria innocua DNA sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   29-AUG-2002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ABQ69245 standard; DNA; 3011208 BP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (INSP ) INST PASTEUR.
(CNRS ) CNRS CENT NAT RECH SCI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     infection;
                                                                                                                                                                          4
                                                         60
                                                                                                                                                                    GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln---GlyGlyLeu
                                                                                                                                                                                                                                                                                 SerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Scores:
                                                         TyrThrPheAlaProTyr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  from WIPO at ftp.wipo.int/pub/published_pct_sequences.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Glaser P;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                (first entry)
                                                                                                             -GATATTAATACGCGTAATTTAGATGAACAATATATGTTTGGCGATGAT 2563531
                                                                                                                                                                                                                                                                                                                                                                                                          1.31e+05
86.00
35.69%
21.57%
7.69%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             food contamination; mutational analysis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          #684.
                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                       Gaps:
                                                   ----SerVallleIleProGln 71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                in electronic format
                                                                                                                                                                                                                                                                                                                                                                                                    3011208
55
36
76
88
14
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          for detection, polypeptides,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           other;
                                                                                                                                                                          59
                                                                                                                                                                                                                                2563579
```

```
RESULT 27
AAZ51000
ID AAZ51
XX
뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2562993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2563053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2563113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2563173 GTCAATCTTCCGGCAATGGCAGATGAAACAACGATGCAAGTTTTCAGTACAGAGCCAACA 2563114
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2563233 AATGGTGGCGAGATGCGTGATATTAGCGTTTCTGAAGACTTTGCAAATGAAAAAGTTACG 2563174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2563293 AATTTAACGTTCCGAGTTTACCCATCAGGAAACAGCGAGTACAGTTTCTATGATGATGTA 2563234
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2563338 TAC---CAACTAGGTCAAAATGTAGGAAACGATTTAAAAGCATAT------GAT 2563294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2563455 ATTTGGAACGGCGGTATCCATCCAGGTGGCGAAACAATTTCTTACTATGCAGATGTT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2563470 GGCGAATGG----
                                                                                                                                                                                                                                                                                                     avrRxol gene; Kanthomonas oryzae pv. oryzicola; avirulence product; hypersensitive resistance; transgenic plant; cell death; abscission fruit harvesting; herbicide development; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AAZ51000 standard;
                                            14-AUG-1998;
13-AUG-1999;
                                                                                                                             24-FEB-2000
                                                                                                                                                            WO200009698-A2
                                                                                                                                                                                                                                                                            Xanthomonas oryzae
                                                                                                                                                                                                                                                                                                                                                                                                         05-JUN-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                          AAZ51000
           (UNIV ) UNIV KANSAS STATE RES FOUND
                                                                                             14-AUG-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      174 SerValLeuValAspGlyLeuGlnLeuLeuGln------AspPro 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      159 GluGlyLysAlaIleIleAsp-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   146 AsnValCysPheHisVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                126 HisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    111 AsnGlnMetPro-----ProGlnAlaAlaValIleLeu-----LeuThrAspGly 125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92 IlePhe---GlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIle 110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   72. GlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGlu 91
                                                                                                                                                                                                                                                                                                                                                                       oryzae avrkxol gene.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuValThrGluGluValValValLeuArgGlyValAsnPheAla 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaValCysGlnGluPheValAsnSerVal------PheCysGlnGluGlnIle 202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ACAGATACTCAAGCTATCGTTTTAAATGGTGTAAATCATGCG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GATACGCTACCTGTATTTGCAAAAGCTGGAGCGATTATTCCAATGAATATGACAGATGGT 2563339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCAACAAGCGCTTATTACTATGACACTGTACAAAACTTAACTTACATCAAAACTGCGGCA 2562994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGTGTAACAGTTGCAGGAGCTGAGGTAGCTAAAGCAGACACACTAGATGCCTTTAATGAA 2563054
                                                                                                                                                                                                                                                                                                                                                                                                        (first entry)
                                            98US-0096585.
99US-0374273.
                                                                                             99WO-US18588
                                                                                                                                                                                                                                           Location/Qualifiers
                                                                                                                                                                                            /product=
                                                                                                                                                                                                           *tag=
                                                                                                                                                                                                                            ..3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3720
                                                                                                                                                                                          "avrRxo protein"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------ValSerPheAlaAspAspAla 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                        plant; cell death; abscission;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2562949
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----ATAGAT 2563456
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2563399
```

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
밁
                                                 Ś
                                                                                                   문
                                                                                                                                                Ś
                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Xanthomonas oryzae pv. oryzicola. This gene encodes an avirulence product that can cause a hypersensitive resistance response in maize. Vectors containing avraxo gene, preferably under the control of a tightly regulated inducible promoter, are used to produce transgenic plants that have inducible resistance properties. The hypersensivity response in plants like maize, that recognise the gene product, includes cell death, e.g. to prevent flowering, to induce abscission (to facilitate fruit harvesting), for herbicide development and for killing above-result nearty of plants the feath of the product of
                                                                                                                                                                                                                                                                                                              1087
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 above-ground parts of plants before harvest.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Claim 1; Page 36-37; 46pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  transgenic
cell death
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Novel avirulence gene from Xanthomonas oryzae, used to generate transgenic plants that show e.g. inducible resistance properties
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Leach
                                                                                                                                                                                                          1135
       1246
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
...
                                                       165
                                                                                                                                                        151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          802
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         48
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    86
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        31 ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsn------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                present sequence is avrRxol gene from the rice pathogen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TTGAGAGGTCCGCCGTTACAGTTGGACACAGGCCAACTTCTCAAGATTGCAAAACGTGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2000-224337/19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AACCTGACCCCGGCACAG-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGCGTGACCGCAGTGGAGGCAGTGCATGCATCGCGCAATGCACTGACGGGTGCCCCCCTG
     TTGCCGGTGCTGTGCCAGGACCATGGCCTGACCCCGGACCAGGTGGCCATCGCCAGC 1305
                                                                                                      GTCGTGGCCATCGCCAGCAATGGCGGCGGCGAAGCAGGCGCTGGAGACGGTGCAGCGGCTG 1245
                                                                                                                                                   ValValSerPheAlaAspAspAlaGluGlyLysAlaIleIle------
                                                                                                                                                                                                                                                       LysSerIleTyrGlnThrAsnProAsnValCys--
                                                                                                                                                                                                                                                                                                                                                           AlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluVal 137
                                                                                                                                                                                                                                                                                                                                                                                                               ACGGTGCAGCGGCTGTTGCCGGTGCTGTGCCAGGACCATGACCTGACCCCGGACCAGGTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrValIleAsnGlnMet---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTGACCCCGGACCAGGTCGTGGCCATCGCCAGCAATGGCGGCGCCAAGCAGGCGCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----GlyAspGlyIleLysMetHisGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGCAAGCAGGCGCTGGAGACGGTGCAGCGGCTGTTGCCGGTGCTGTGCCAGGACCATGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleLysSerAspLeuGluIlePheGlyArgLeuThrProVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----AlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Hulbert
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 646 A; 1192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8.48
85.50
32.46%
21.64%
7.64%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          x AAZ51000
                                                                                                                                                                                                          -CCGGTGCTGTGCCAGGACCATGGCCTGACCCCGGACCAG 1185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               C; 1295 G; 587
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             (1-3720)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GTGGTGGCCATCGCCAGCAATAACGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches:
                                               -AspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                              ĠĠĊAAGCAGGCGCTGĠÁĠACGĠTĠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ή,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ProProGlnAla 117
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3720
58
29
84
97
                                                                                                                                                                                                                                                            PheHis 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                includes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            or
2
                                                                                                                                                                                                                                                                                                                                                                                                               1086
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       966
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      906
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       861
                                                                                                                                                                                                                                                                                                           1134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1026
                                                    172
                                                                                                                                                        164
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
 RESULT 28
                                                                                                                                                                                                                                                                   14-SEP-2000;
19-OCT-2000;
29-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1486
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1366
      The invention relates to human nucleic acids (AAI57798-AAI61369) and the encoded polypeptides (AAM38642-AAM42213) with nootropic, immunosuppressant and cytostatic activity. The polynucleotides are useful in gene therapy. A composition containing a polypeptide or polynucleotide of the invention may be used to treat diseases of the peripheral nervous system, such as peripheral nervous injuries, peripheral neuropathy and localised neuropathies and central nervous system diseases, such as
                                                                                                                                                                                                          Tang
Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Human; nootropic; immunosuppressant; cytostatic; gene therapy; cance: peripheral nervous system; neuropathy; central nervous system; CNS; Alzheimer's; Parkinson's disease; Huntington's disease; hambourophic lateral sclerosis; Shy-Drager Syndrome; chemotactic; chemokinetic; thrombolytic; drug screening; arthritis; inflammation;
                                                                                                                                                                                                                                                                                                     19-JUL-2000;
03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAI60237;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA160237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1426
                                                                                                                                                                                                                                                                                                                            25-APR-2000;
09-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                         26-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                       WO200153312-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                            Homo sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         22-OCT-2001
                                                                                                                           Novel nucleic acids and such as central nervous
                                                                                                                                                                                                 Zhao
                                                                                                                                                                                                                                                                                                                                                  21-JAN-2000;
                                                                                                      Claim
                                                                                                                                                              P-PSDB; AAM41081
                                                                                                                                                                                                                                             (HYSE-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   eukaemia; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GACCAGGTCGTGGCCGTCGCCGGC 1509
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn-----ProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluGluValValValLeuArgGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCGCTGGAGACGGTGCAGCGGCTGTTGCCGGTGCTGTGCCAGGACCATGGCCTGACCCCG 148:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluPhe---
                                                                                                                                                                          2001-442253/47.
                                                                                                                                                                                               Š'n,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CACGATGGCGGCAAGCAGGCGCTGGAGACGGTGCAGCGGCTGTTGCCGGTGCTGTGCCAG
                                                                                                     1;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  polynucleotide
                                                                                                                                                                                                                                              HYSEQ INC.
                                                                                                                                                                                              Liu C,
Wang Z,
Zhou P,
                                                                                                    SEQ ID NO 4226; 10078pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      standard; cDNA; 6292
                                                                                                                                                                                                                                                                                         2000US-0552317.
2000US-0598042.
2000US-0620312.
2000US-0653450.
2000US-0662191.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first entry)
Parkinson's disease, Huntington's disease, amyotrophic
                                                                                                                                                                                                                                                                                                                                                                           2000WO-US34263.
                                                                                                                                                                                                                                                                    2000US-0693036
2000US-0727344
                                                                                                                                                                                                                                                                                                                                                    2000US-0488725
                                                                                                                                                                                                           Asundi V,
Wehrman T,
                                                                                                                                                                                                 Goodrich
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SEQ ID
                                                                                                                           polypeptides,
system injurie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -ValAsnSerValPheCysGlnGluGlnIleLeuValThr
                                                                                                                                                                                                 æ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ö
                                                                                                                                                                                                           Chen
Xu C
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ВP
                                                                                                                            injuries
                                                                                                                                                                                                 Drmanac
                                                                                                                                                                                                             Ç
                                                                                                                                                                                                                <sup>ي</sup> ک
                                                                                                                                                                                                             Xue
                                                                                                                                                                                          Ma Y,
Kué AJ,
RT;
                                                                                                                                        useful
                                                                                                                                                                                                           Qian >
                                                                                                                                         for
                                                                                                                                        treating
                                                                                                                                                                                                             g xB,
                                                                                                                                                                                                             Zhang
                                                                                                                                                                                                                         Ren F,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ........
                                                                                                                                         disorders
                                                                                                                                                                                                             ū
                                                                                                                                                                                                                       Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1365
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      192
```

```
RESULT 29
AAD38694
ID AAD38
XX
AC AAD38
XX
DT 23-SE
                                                                                                                                            밁
                                                                                                                                                                     ર્
                                                                                                                                                                                                       문
                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                ð
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                               8
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x AAI60237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ព្ធខ្លួនខ្លួនខ្លួន
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                          4416
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 lateral sclerosis, and Shy-Drager Syndrome. Other uses include the utilisation of the activities such as: Immune system suppression, Activin/inhbin activity, chemotactic/chemokinetic activity, hademostatic and thrombolytic activity, canner diagnosis and therapy, drug screening, assays for receptor activity, arthritis and inflammation, leukaemias and assays for receptor activity, arthritis and inflammation, leukaemias and
                                                                                                                                                                                                                                                                      4299
                                                                                                                                                                                                                                                                                                                                     4254
                                                                                                                                                                                                                                                                                                                                                                                                  4209
                                                                                                                                                                                                                                                                                                                                                                                                                                                               4149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4020
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3901
                  23-SEP-2002
                                                                             AAD38694 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3961 TGATCCGAAGACGAACAGTGACCCAGCCCTTTCAAGGTGATGGAAGACCATGCCCTTCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      C.N.\hat{\mathbf{S}} disorders.
Note: The sequence data for this patent did not form part of the printed
                                               AAD38694;
                                                                                                                                                                                                                                                                                                                                                                                                                                 119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4068
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 6292
                                                                                                                                                                          199
                                                                                                                                                                                                                                                                                                     159
                                                                                                                                                                                                                                                                                                                                                                   139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Х
О
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    34
                                                                                                                                          CCAGAGCAGATGTTAGAAACAAAA 4439
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGlu---
                                                                                                                                                                      GlnGluGlnIleLeuValThrGlu
                                                                                                                                                                                                      GGAATACAGGTCAGATCCAGACCGGTGATTATACAAGAACTAGAGAATCAGCATCTGTGC
                                                                                                                                                                                                                                     GlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCys 198
                                                                                                                                                                                                                                                                    TCTTCCTGGAGCCTGTGT----CAGCTGACCTGTGTGAATGGTGAGGATCTAGGCTTTGGT 4359
                                                                                                                                                                                                                                                                                                GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAsp
                                                                                                                                                                                                                                                                                                                                                              SerIleTyrGinThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla 158
                                                                                                                                                                                                                                                                                                                                                                                                ATTGAACTCATTATAGATGGTAATAAAATATGGTTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                              ValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTAAGTGATGGGTCAGCTGATGATTTCAGCAAAGTGGTGGATGAGGAATTCTGTGCTGAC 4201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAla 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GCCCAGTGTGGAGAAGGGACCAGAACAAGGAACATTTCTTGTGTA---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrPro 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----CAATATGGCCAGTGGTCTCCATGCCAAGTGCAGGAG 4103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCys------Val
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CTGATGGACCAGTCCAAACCCTGCCCAGTGAAGCCTTGTTATCGGTGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LysIleAsnAlaAlaMetPro-----LysMetSerTyrGlnGlyGlyLeuTyrThr 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGCTTTCTGATTGGTCTCCTTGGTCAGAATGTTCTCAAACATGTGGCCTCACAGGAAAAA 3960
                                                                                                                                                                                                                                                                                                                                   TCCTGCAGCCAGCCTTGCCCAGGTGACTGT--
                (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1818
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                18.3
85.50
37.98%
21.15%
7.64%
                                                                           CDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            P
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----ProLysIleGluLeuAlaLysGluAlaIleLeu
                                                                             6317
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1391
                                                                           ВP
                                                                                                                                                                      206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (1-6292)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative: Mismatches: Indels: Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1595
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ด
เ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1487
                                                                                                                                                                                                                                                                                                                                   -----TATTTGAAGGACTGG 4298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               6292
44
35
85
85
                                                                                                                                                                                                                                                                                                                                                                                                ----GAA
                                                                                                                                                                                                                                                                                                  178
                                                                                                                                                                                                                                                                                                                                                                                               4253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 33
```

S

US-10-034-500-2 (1-218) x AAD38694 (1-6317)

Gaps:

15 AsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGlu---::::::|||::::

Best Local Similarity:

Query Match:

Alignment Scores: Percent Similarity: combined immunodeficiency, ischaemia, carcinomas, haemolytic anaemia, reperfusion injury, neoplasms and cancer especially liver cancer. They are also used for wound healing. Polynucleotides of the invention can be used to generate transgenic animals or knock out animals, which in turn, are useful in the development and screening of therapeutically useful reagents for use in the treatment of diseases associated with LP polypeptide associated activity. They are also used in gene therapy The present sequence is human LP217 secreted protein encoding cDNA. The invention relates to human secreted polypeptides designated LP095, LP191, LP217, LP220, LP221, LP229, LP237 or LP238 and nucleic acid molecules encoding suppose the secreted proteins of the invention are used for treating diseases such as atherosclerosis, Alzheimer's disease, diabetic retinopathy, psoriasis, pancreathis, arteriosclerosis, rheumatoid arthritis, colorectal adenomas, severe Sequence 6317 Novel proteins and polynucleotides of secreted proteins useful for treating various diseases e.g. rheumatoid arthritis, cancer, psoriasis diabetic retinopathy, arteriosclerosis, ischemia or reperfusion injury Su gene therapy; neopias chromosome 7p21-p22; diabetic retinopathy; severe combined immunodeficiency; pancreatitis; rheumatoid arthritis; colorectal adenoma; haemolytic anaemia; cancer; reperfusion injury; arteriosclerosis; wound healing; transgenic animal; gene therapy; neoplasm; transgenic; psoriasis; ischaemia; carcinoma; WPI; 2002-471259/50 14-SEP-2001; 2001WO-US26026 04-APR-2002. mat\_peptide Human LP217 secreted protein encoding Claim 1; Page 109-117; 145pp; English WO200226801-A2 sig\_peptide о : P-PSDB; AAE23979. (ELIL ) LILLY & CO 28-SEP-2000; 2000US-236088P Homo sapiens. EW, secreted protein; atherosclerosis; Alzheimer's disease; LP217; ic retinopathy; severe combined immunodeficiency; pancreatitis; Wang BP; 1776 A; 1442 C; 1617 G; /\*tag= b 329..5155 284..328 Location/Qualifiers 284..5158 /product= \*tag= product= \*tag= 18.4 85.50 37.98% 21.15% 7.64% ELI. gene; "Mature human LP217 secreted protein" "Human LP217 Matches: Conservative: Mismatches: Indels: Length: CDNA. secreted protein" 1482 T; 6317 44 35 85 45 8 0 other;

```
AAF30188
AAF30188
AAF30188
AC AAF
XX
AC AAF
XX
AC AAF
AC AAF
XX
AC AAF
AC AC AAF
AC AA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     RESULT 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4295
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4250
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4047 AGCTTTCTGATTGGTCTCCTTGGTCAGAATGTTCTCAAACATGTGGCCTCACAGGAAAAA 4106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SECP1; secreted protein; human;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Clone 21433858 encoding secreted protein SECP1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          30-APR-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAF30188;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAF30188 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4502
                                                                                                                                                                                                                                                                                                                                      mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                    sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Homo
                                          20-JUL-1999;
29-NOV-1999;
                                                                                                                                20-JUL-2000; 2000WO-US19890
                                                                                                                                                                                          25-JAN-2001
                                                                                                                                                                                                                                                    WO200105971-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTGAACTCATTATAGATGGTAATAAAATATGGTTCTGGAG------GAA 4399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              VallleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys 138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAla 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GCCCAGTGTGGAGAAGGGACCAGAACAAGGAACATTTCTTGTGTA----- 4294
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrPro 98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTGATGGACCAGTCCAAACCCTGCCCAGTGAAGCCTTGTTATCGGTGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LysIleAsnAlaAlaMetPro------LysMetSerTyrGlnGlyGlyLeuTyrThr 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCys 198
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAsp 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTAAGTGATGGGTCAGCTGATGATTTCAGCAAAGTGGTGGATGAGGAATTCTGTGCTGAC 4354
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSerCys-----Val
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TGATCCGAAGACGAACAGTGACCCAGCCCTTTCAAGGTGATGGAAGACCATGCCCTTCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ProLysIleGluLeuAlaLysGluAlaIleLeu 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CCAGAGCAGATGTTAGAAACAAAA 4585
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TCCTGCAGCCAGCCTTGCCCAGGTGACTGT------TATTTGAAGGACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ĠĠĀATĀĊĀĠGTCAGATCCAGĀĊĊĠGTGATTATĀĊĀĀĠĀĀCTAGĀGĀĀTCAGCATCTGTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTTCCTGGAGCCTGTGT---CAGCTGACCTGTGTGAATGGTGAGGATCTAGGCTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88
                                          99US-0144722.
99US-0167785.
                                                                                                                                                                                                                                                                                                                                          /*tag= b
304..4998
                                                                                                                                                                                                                                                                                                           /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                 235..303
                                                                                                                                                                                                                                                                                                                                                                                                                         /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers
235..5001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                  ø
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           6373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -- CAATATĠĠĊCAGTĠĠTCTCCATĠĊCAAGTGCAGGAG 4249
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      diagnosis; gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4213
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   4561
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4444
```

```
밁
                                                                                                                                                                             S
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local
                                                              밁
                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              gland, thyroid, mammary gland, myometrium, uterus, placenta, carcinoma, thyroid, mammary gland, myometrium, uterus, placenta, grostate, testis, and in neoplastic cells derived from ovarian carcinoma, breast carcinoma, prostate carcinoma (bone metastases) cand melanoma, secret acids can be used to identify these cell types. SECP1 was also highly expressed in a small cell lung cancer, a large cell lung cancer, and a non-small cell lung cancer, a large cell lung cancer, and a non-small cell lung cancers, and nucleic acids may be useful as diagnostic probes for such lung cancers, and nucleic acids and proteins may be targets for the treatment of such cancers. The predicted SECP1 protein showed homology to human KIAA0960. The invention provides 9 novel them (see AAB30188-96), antibodies, mutants or fragments. These can be used to detect, treat or prevent an SECP-associated disorder, to screen for predisposition to such a disorder, and to identify an
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             New polypeptide designated SECP, its encoding nucleic acid immunospecific antibody, useful for diagnosing, preventing SECP-associated disorders such as cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          The present sequence is that of clone 21433858 encoding novel secreted protein SECPI (see AAB20155) that is predicted to localise in the plasma membrane. RNA species with homology to the clone were detected in endothelial cells, pancreas, adipose, adrenal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUL-2000; 2000US-0619252.
                                                                                                                                                                                                                                                                                                 4009
                                                                                                                                                                                                                                                                                                                                                                                                                                                        3890
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Claim 8; Fig 1; 124pp; English
                                                                                                                                                                                                                                                                                                                                                                              3950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                agent that modulates the expression or activity of SECP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        No . :
                      119
                                                                                                                                                                                                                                                                                                                                        45
                                                                                                                                                                                                                                                                                                                                                                                                                  34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15
                                                                                                                                                                                 79
                                                                                                                                                                                                                                                             62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2001-091973/10
VallleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys 138 ::: |||::: ||||::: :::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGlu---
                                                              ĠŦŔĀĠŢĠŔŢĠĠŢĊĄĠĊŢĠĀŢĠĀŢŢĊĄĠĊĄĄĄĠŢĠĠŢĠĠĀŢĠĄĠĠŖĀŢŢĊŢĠĊŢĠĄĊ
                                                                                                ValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAla 118
                                                                                                                                                                           AlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrPro 98
                                                                                                                                                                                                                                                                                                 CTGATGGACCAGTCCAAACCCTGCCCAGTGAAGCCTTGTTATCGGTGG------
                                                                                                                                                                                                                                                                                                                                  TGATCCGAAGACGAACAGTGACCCAGCCCTTTCAAGGTGATGGAAGACCATGCCCTTCC- 4008
                                                                                                                                                                                                                                                                                                                                                                                                                                                        AGCTTTCTGATTGGTCTCCTTGGTCAGAATGTTCTCAAACATGTGGCCTCACAGGAAAAA 3949
                                                                                                                                          GCCCAGTGTGGAGAAGGGACCAGAACAAGGAACATTTCTTGTGTA---
                                                                                                                                                                                                                                                       PheAlaProTyrSerValIleIleProGlnG|ySerTrpAsnSerCys------Val 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              6373
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                BP; 1836 A; 1385 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 x AAF30188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         18.6
85.50
37.98%
21.15%
7.64%
                                                                                                                                                                                                                         ----CAATATGGCCAGTGGTCTCCATGCCAAGTGCAGGAG 4092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-6373)
                                                                                                                                                                                                                                                                                                                                                                                                                  ProLysIleGluLeuAlaLysGluAlaIleLeu 44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1603 G; 1548
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                T; 1 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         6373
44
35
85
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         treating
```

4056

```
RESULT 31
AAIS8451
ID AAIS8
XX AAIS8
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              peripheral nervous system; neuropathy; central nervous system; CNS; Alzheimer's; Parkinson's disease; Huntington's disease; haemostatic; amyotrophic lateral sclerosis; Shy-Drager Syndrome; chemotactic; chemokinetic; thrombolytic; drug screening; arthritis; inflammation; leukaemia; sa:
                The invention relates to human nucleic acids (AAI57798-AAI61369) and the encoded polypeptides (AAM38642-AAM42213) with nootropic, immunosuppressant and cytostation. The polypurcleotides are useful in gene therapy. A composition containing a polypeptide or polynucleotide of the invention may be used to treat diseases of the peripheral nervous system, such as peripheral nervous injuries, peripheral neuropathy and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4405
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4198
                                                                                                                                                                             Claim 1;
                                                                                                                                                                                                                                             Novel nucleic acids and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           29-NOV-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-SEP-2000;
19-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            03-AUG-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                19-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     25-APR-2000;
09-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 21-JAN-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             26-DEC-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           26-JUL-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO200153312-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Human polynucleotide SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              22-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAI58451
                                                                                                                                                                                                                                                                                                                                                                                                                                             (+SSYH)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          leukaemia; вв.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         139
                                                                                                                                                                                                                                                                                                                                                       Šኂ<sup>፞</sup>፞ጟ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              sapiens
                                                                                                                                                                                                                                                                                                              2001-442253/47.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CCAGAGCAGATGTTAGAAACAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnGluGlnIleLeuValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAsp 178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAATACAGGTCAGATCCAGACCGGTGATTATACAAGAACTAGAGAATCAGCATCTGTGC 4404
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TCTTCCTGGAGCCTGTGT----CAGCTGACCTGTGTGAATGGTGAGGATCTAGGCTTTGGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TCCTGCAGCCAGCCTTGCCCAGGTGACTGT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTGAACTCATTATAGATGGTAATAAAAATATGGTTCTGGAG---
                                                                                                                                                                                                                      central nervous
                                                                                                                                                                                                                                                                                           AAM39295
                                                                                                                                                                                                                                                                                                                                                                                                                                             HYSEQ
                                                                                                                                                                                                                                                                                                                                                       Wang 2
Zhou
                                                                                                                                                                               SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard;
  neuropathies
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2000US-0488725.
2000US-0552317.
2000US-05598042.
2000US-0620312.
2000US-0623450.
2000US-062191.
2000US-0693036.
2000US-0727344.
                                                                                                                                                                                                                                                                                                                                                ָם,
מֹנֻ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2000WO-US34263
                                                                                                                                                                                                                                                                                                                                                                                                                                             INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (first
                                                                                                                                                                                                                                                                                                                                                     Asundi V, Ch
Wehrman T, X
Goodrich R,
                                                                                                                                                                          654; 10078pp;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            entry)
                                                                                                                                                                                                                    polypeptides,
system injurie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 6378
  central nervous system
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ĕ
                                                                                                                                                                                                                                                                                                                                                                          Chen R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         4428
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ΒP
                                                                                                                                                                                                                    ptides, useful
injuries -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  654
                                                                                                                                                                                                                                                                                                                                                          Drmanac
                                                                                                                                                                          English
                                                                                                                                                                                                                                                                                                                                                                          Xue
Ma
                                                                                                                                                                                                                                                                                                                                                       RT;
                                                                                                                                                                                                                                                                                                                                                                          Qian :
Yang
                                                                                                                                                                                                                                         for treating
                                                                                                                                                                                                                                                                                                                                                                          Ά, β,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TATTTGAAGGACTGG 128
                                                                                                                                                                                                                                                                                                                                                                          Ren F,
Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GAA: 4242
                                                                                                                                                                                                                                             disorders
                                                                                                                                                                                                                                                                                                                                                                            ď,
                                                                                                                                                                                                                                                                                                                                                                                                 Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4344
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        198
```

```
RESULT 3:
AAI61084
ID AAI
XX
AC AAI
XX
AC AAI
XX
ZZ
DT 22-4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment
Pred. No.:
Score:
                                                                                                                         밁
                                                                                                                                                 á
                                                                                                                                                                                  밁
                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    딹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SSSSSSSSSS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity
                                                                                                                         4441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alzheimer's, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Prager Syndrome. Other uses include the utilisation of the activities such as: Immune system suppression, Activin/inhibin activity, chemotactic/chemokinetic activity, haemostatic and thrombolytic activity, cancer diagnosis and therapy, drug screening, assays for receptor activity, arthritis and inflammation, leukaemias and cansays for receptor activity, arthritis and inflammation, leukaemias and cansays for receptor activity, arthritis and inflammation, leukaemias and cansays for receptor activity, arthritis and inflammation.
                                                                                                                                                                                                                                             4324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4093
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4045
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3986
                                                                                                                                                                                                                                                                                                                                                                     4234
                                                            AAI61084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           specification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Note: The sequence data for this patent did
                                                                                                                                                      199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             79
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              34
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   45
                                                                                                                                                                                                                                                                                                                                                                   ATTGAACTCATTATAGATGGTAATAAAATATGGTTCTGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TGATCCGAAGACGAACAGTGACCCAGCCCTTTCAAGGTGATGGAAGACCATGCCCTTCC-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AGCTTTCTGATTGGTCTCCTTGGTCAGAATGTTCTCAAACATGTGGCCTCACAGGAAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGlu---
                                                                                                                       CCAGAGCAGATGTTAGAAACAAAA
                                                                                                                                                  GlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                    GGAATACAGGTCAGATCCAGACCGGTGATTATACAAGAACTAGAGAATCAGCATCTGTGC
                                                                                                                                                                                                               GlyLeuGlnLeuGlnAsnProAlaValCysGlnGluPheValAsnSerValPheCys
                                                                                                                                                                                                                                                                          GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAsp
                                                                                                                                                                                                                                                                                                                                                                                                  ValIleLeuLhrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCCAGTGTGGAGAAGGAACCAGAACAAGGAACATTTCTTGTGTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTGATGGACCAGTCCAAACCCCTGCCCAGTGAAGCCTTGTTATCGGTGG---
                                                                                                                                                                                                                                             TCTTCCTGGAGCCTGTGT----CAGCTGACCTGTGTGAATGGTGAGGATCTAGGCTTTGGT
                                                                                                                                                                                                                                                                                                          TCCTGCAGCCAGCCTTGCCCAGGTGACTGT----
                                                                                                                                                                                                                                                                                                                                     SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla
                                                                                                                                                                                                                                                                                                                                                                                                                                  GTAAGTGATGGGTCAGCTGATGATTTCAGCAAAGTGGTGGATGAGGAATTCTGTGCTGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                ValGlyAspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LysIleAsnAlaAlaMetPro-----LysMetSerTyrGlnGlyGlyLeuTyrThr 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCys------Val
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             6378
                                                            standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             B₽;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1823
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       x AAI58451
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     18.7
85.50
37.98%
21.15%
7.64%
                                                              CDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Α,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----Caatatééccagiéétctccaiéccaagtgcaggag
                                                              2602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (1-6378)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ProLysIleGluLeuAlaLysGluAlaIleLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6378
44
35
85
45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        form part of the printed
                                                                                                                                                                                                                                                                                                          -TATTTGAAGGACTGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               other;
                                                                                                                                                                                                                                                                                                                                                                     -----GAA
                                                                                                                                                                                                                                             4380
                                                                                                                                                                                                                                                                                                                                                                                                   138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                118
                                                                                                                                                                                                                                                                                                          4323
                                                                                                                                                                                                                                                                                                                                                                   4278
                                                                                                                                                                                                                                                                                                                                                                                                                                  4233
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4128
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44
                                                                                                                                                                                                                                                                            178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    4092
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ω
ω
                                                                                                                                                                                    4440
```

22-OCT-2001

(first entry)

```
Best I
Query
DB:
Ъ
                         Ş
                                                 US-10-034-500-2
                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                        Score:
                                                                                                                                             Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Tang
Wang
Zhao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             peripheral nervous system; neuropathy; central nervous system; CNS; Alzheimer's; Parkinson's disease; Huntington's disease; haemostatic; amyotrophic lateral sclerosis; Shy-Drager Syndrome; chemotactic; chemokinetic; thrombolytic; drug screening; arthritis; inflammation;
                                                                                                                                                                                                                           Alzheimer's, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Drager Syndrome. Other uses include the utilisation of the activities such as: Immune system suppression, Activin/inhibin activity, chemotactic/chemokinetic activity, haemostatic and thrombolytic activity, cancer diagnosis and therapy, drug screening, assays for receptor activity, arthritis and inflammation, leukaemias and
                                                                                                                                                                                                                                                                                            The invention relates to human nucleic acids (AAI57798-AAI61369) and the encoded polypeptides (AAM38642-AAM42213) with nootropic, immunosuppressant and cytostatic activity. The polynucleotides are useful in gene therapy. A composition containing a polypeptide or polynucleotide of the invention may be used to treat diseases of the peripheral nervous system, such as peripheral nervous injuries, peripheral neuropathy and localised neuropathies and central nervous system diseases, such as allocalised neuropathies and central nervous system diseases, such as
                                                                                                                                                                                                                                                                                                                                                                                                Claim 1;
                                                                                                                                                                                                                                                                                                                                                                                                                      Novel nucleic acids and such as central nervous
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     03-AUG-2000;
14-SEP-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       09-JUL-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  21-JAN-2000;
25-APR-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       26-DEC-2000; 2000WO-US34263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               26-JUL-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      WO200153312-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human
                                                                                                                                                                                                                                                                                                                                                                                                                                                          P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   leukaemia; ss
                                                                                                                                                                     Sequence 2602
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-JUL-2000;
                                                                                                                                                                                                      C.N.S disorders.
Note: The sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (HYSE-)
                                                                                                                                  No ::
    272
                                                                                     Match:
                           21
                                                                                                                                             Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2001-442253/47.
    TCAAACCGTATGTTAATGGTACATCTCCT-GTGTATTCTAGGGAAGATTTAAAACCATGG 330
                         SerGlySerMetMetLysHisValAlaVal-----ArgGluProLysIleGluLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   polynucleotide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              nootropic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAM41928.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         HYSEQ INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Liu
Wang
                                                                                                                                                                                                                                                                                                                                                                                                SEQ ID NO 5073;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Zhou
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2000US-0488725.

2000US-0552317.

2000US-0598042.

2000US-0620312.

2000US-0653450.

2000US-0652191.

2000US-0693036.

2000US-0727344.
                                                 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        u P,
                                                                                                                                                                     вP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Asundi V
Wehrman
                                                                                                                                                                     870
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             immunosuppressant;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Asundi V, Ch
Wehrman T, X
Goodrich R,
                                                                         6.68
84.50
41.20%
27.78%
7.55%
                                                  ×
                                                                                                                                                                                                       data
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQ
                                                  AAI61084
                                                                                                                                                                     A.
                                                                                                                                                                                                                                                                                                                                                                                                                     polypeptides, useful system injuries -
                                                                                                                                                                                                       for this
                                                                                                                                                                                                                                                                                                                                                                                              10078pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ħ
                                                                                                                                                                     396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ĕ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chen R,
Xu C,
                                                                                                                                                                     Ç
                                                 (1-2602)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5073
                                                                                                                                                                   506
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Drmanac
                                                                                                                                                                                                      patent
                                                                                  Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     , Ma
Xue
                                                                                                                                                                     ç.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cytostatic;
                                                                                                                                                                     830
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RT;
                                                                                                                                                                                                       did
                                                                                                                                                                     H,
                                                                                                                                                                                                       not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Qian >
Yang
                                                                                                                                                                                                                                                                                                                                                                                                                                   for
                                                                                                                                                                     0
                                                                                                                                                                                                     form part
                                                                        2602
60
29
69
59
                                                                                                                                                                                                                                                                                                                                                                                                                                 treating disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             gene therapy;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g xB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ren F,
Zhang
                                                                                                                                                                                                       of the printed
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   cancer;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Wang
                           38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ü
```

#

```
AAI59298
AAI59298
AAI59298
AC AAI59
AC 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           δð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
21-JAN-2000;
25-APR-2000;
09-JUL-2000;
19-JUL-2000;
103-AUG-2000;
14-SEP-2000;
19-OCT-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Human; nootropic; immunosuppressant; cytostatic; gene therapy; cance: peripheral nervous system; neuropathy; central nervous system; CNS; Alzheimer s; Parkinson's disease; Huntington's disease; haemostatic; amyotrophic lateral sclerosis; Shy-Drager Syndrome; chemotactic; chemokinetic; thrombolytic; drug screening; arthritis; inflammation;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Human polynucleotide SEQ ID NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAI59298
                                                                                                                                                                                                                 26-DEC-2000; 2000WO-US34263
                                                                                                                                                                                                                                                                                                                      WO200153312-A1
                                                                                                                                                                                                                                                                                                                                                                       Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  22-OCT-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             331
                                                                                                                                                                                                                                                                  26-JUL-2001.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              814
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  754
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              634
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaLysGluAlaIleLeuLysIleAsnAlaAlaMetPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       eTyrGlnThrAsnProAsnValCysPheHis------ValValSerPheAlaAs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GCATTGACTACCAAGGAAACAATTCAGGAATGAATAGCATGGAAACAGTTTTATTCACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluVal-LysSerIl
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIle 120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTTGTGGATCTCAGAACTATCATGGAAATAGAAGAAAGTAGACAAAAATGTGGAGCT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AGATGCTCTACCCATGGTACCCCAGGACCAGAAGGCAACCATATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GATCATGTCAAAAAAGTTTCTTTTAAAGGAATTGAAAATTCTCAGGCACCAAAAATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGTCATTCCGGGATTTCTTACTAGAAGAAAAAAAGTCTGTTACTAGCCATAGTTCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     pAspAlaGluGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CCTTCAAAAGCCCCCAAACCAGTGAATGCATGGGCATCTTCTGCGTTTCAGTTTCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard;
  2000US-0620312.
2000US-0653450.
2000US-0662191.
2000US-0693036.
                                                                                                       2000US-0488725.
2000US-0552317.
2000US-0598042.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -LysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSer-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ProAlaValCysGlnGluPheValAsnSerValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACACCAAAGTCACATTTA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -ValIleIleProGlnGlySerTrpAsnSerCysValAlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      6049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -ĻysAlaIleIleAspGlnIleVal---Al
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----TCTTTCAGTCCTGTCAGCCCTCCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -GGCAAA-----ACAGTTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         140
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        813
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             573
```

29-NOV-2000; 2000US-0727344

```
र्
                                                 밁
                                                                         ঠ
                                                                                                     밁
                                                                                                                         ş
                                                                                                                                                         밁
                                                                                                                                                                              S
                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                            á
밁
                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x AAI59298
                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     in gene therapy. A composition containing a polypeptide or polynucleotide of the invention may be used to treat diseases of the peripheral nervous system, such as peripheral nervous injuries, peripheral neuropathy and localised neuropathies and central nervous system disease, such as Alzheimer's, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Drager Syndrome. Other uses include the utilisation of the activities such as: Immune System suppression, Activin/inhibin activity, chemotactic/chemokinetic activity, haemostatic and thrombolytic activity, cancer diagnosis and therapy, drug screening, assays for receptor activity, arthritis and inflammation, leukaemias and
4022
                                                   3983
                                                                                                                                                            3893
                                                                                                                                                                                                              3839
                                                                                                                                                                                                                                                                                                                    3720
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Tang
Wang
                                                                                                       3950
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 6049
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    specification
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        The invention relates to human nucleic acids (AAI57798-AAI61369) and the encoded polypeptides (AAM38642-AAM42213) with nootropic, immunosuppressant and cytostatic activity. The polynucleotides are useful
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Claim 1; SEQ ID NO 1501; 10078pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Novel nucleic acids and polypeptides, useful such as central nervous system injuries -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (HYSE-)
                                                                             101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          N.S disorders.
                                                                                                                                81
                                                                                                                                                                                   67
                                                                                                                                                                                                                                        52
                                                                                                                                                                                                                                                                                          3
                                                                                                                                                                                                                                                                                                                                              21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş, Ţ
                                                                                                                                                                                                                                                                               2001-442253/47.
DB; AAM40142.
GCATTGACTACCAAGGAAAACAATTCAGGAATGAATAGCATGGAAACAGTTTTATTCACT
                      LeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluVal-LysSerIl
                                                   CATGGAGTTAAACTTTCTCAG
                                                                          AspGlyIleLysMetHisGluThrVallleAsnGlnMetProProGlnAlaAlaValIle 120
                                                                                                                           CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                        GTTGTGGATCTCAGAACTATCATGGAAATAGAAGAAAGTAGACAAAAATGTGGAGCT---
                                                                                                                                                                                                           ACTACCAGCTCTGCCAGTTGGGTTGCTGGT----TCTTTCAGTCCTGTCAGCCCTCCT
                                                                                                                                                                                                                                                              GAAAAGTCACCAATACTTAAAATATCTGCTCCACAGCCTATTCCCAGTAACAGAATTGAT 3838
                                                                                                                                                                                                                                                                                                                 TCAAACCGTATGTTAATGGTACATCTCCT-GTGTATTCTAGGGAAGATTTAAAACCATGG
                                                                                                                                                                                                                                                                                                                                            SerGlySerMetMetLysHisValAlaVal-----ArgGluProLysIleGluLeu
                                                                                                      -----ACACCAAAGTCACATTA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           HYSEQ INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Liu C,
Wang Z,
Zhou P,
                                                                                                                                                                                                                                  -----LysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSer-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         BP;
                                                                                                                                                                               ------ValIleIleProGlnGlySerTrpAsnSerCysValAlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Asundi V, Ch
Wehrman T, X
, Goodrich R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1900
                                                                                                                                                                                                                                                                                                                                                                                                23
84.50
41.20%
27.78%
7.55%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ð,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         973
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               this
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Chen R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ç
                                                                                                                                                                                                                                                                                                                                                                       (1-6049)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Drmanac
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             patent
                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                               Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Xue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        G; 1900 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       RT;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             did not
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2,5
                                                                                                   -GGCAAA-----ACAGTTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Qian XE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     for
                                                 - AAGCAACGAAAAATGATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             form part of the
                                                                                                                                                                                                                                                                                                                                                                                                6049
60
29
69
59
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  treating
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ς
XB,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ren F,
Zhang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     disorders
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ţ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Wang
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             printed
                                                 4021
                                                                                                     3982
                                                                                                                                                        3949
                                                                                                                                                                                                                                                                                                                   3778
                                                                                                                                                                                                                                     66
                                                                                                                                                                                                                                                                                          51
                                                                                                                                                                                                                                                                                                                                             38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ū
```

```
ARASULT 34
ARASULT 34
ARATS149
ID 7019
AC ARATS
XX ARATS
AC ARATS
XX ARATS
AC ARATS

                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  cellular proliferation; cellular differentiation; cellular adhesion; von Willebrand factor-associated disorder; cell trafficking; cancer; hematopoietic associated disease; atelectasis; pulmonary congestion; oedema; emphysema; chronic bronchitis; bronchial asthma; bronchiectasis; intestinal disorder; spleen associated disease; renal disorder; cardiovascular disorder; ischemic heart disease; hydrocephalus; brain herniation; iatrogenic disease; inflammation; meningitis; hlzheimer's Disease; cerebral toxoplasmosis; Parkinson's disease; multiple sclerosis; hydrocephalus; encephalitis; hepatic disorder; ss.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  4262
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4202
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 01-MAR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      mat_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           sig_peptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4142
                                                                                                                                                                                                            Novel human and murine secreted proteins designated TANGO 216, 261, 262, 266 and 267 useful as modulating agents of cellular processes,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  01-MAR-2000; 2000WO-US05226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cDNA encoding
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15-JAN-2001
                                                                                                                                                                                                                                                                                               P-PSDB;
                                                                                                                                                                                                                                                                                                                                                                                                                                  (MILL-) MILLENNIUM PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              WO200052022-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TANGO 266; TANGO 216;; TANGO 261; TANGO 262; TANGO 267;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAA75149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAA75149
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               140
                                                                                                                                                                                                                                                                                                                        2000-579269/54.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            sapiens.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGATGCTCTACCCATGGTACCCCAGGACCAGAAGGCAACCATATTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATCATGTCAAAAAAGTTTCTTTTAAAAGGAATTGAAAATTCTCAGGCACCAAAAAATTGTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                pAspAlaGluGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----ProAlaValCysGlnGluPheValAsnSerValPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGTCATTCCGGGATTTCTTACTAGAAGAAAAAAAGTCTGTTACTAGCCATAGTTCAGGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CCTTCAAAAGCCCCCAAACCAGTGAATGCATGGGCATCTTCTCTGCATTCAGTTTCATCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          eTyrGlnThrAsnProAsnValCysPheHis------ValValSerPheAlaAs 156
                                                                                                                                    2
                                                                                                                                                                                                                                                                                                                                                                             Ϋ́
                                                                                                                                                                                                                                                                                               AAB18447.
                                                                                                                                                                                      treating cancer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        standard;
                                                                                                                                    Fig 1A-C;
                                                                                                                                                                                                                                                                                                                                                                             Holtzman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             a human
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 99US-0122458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              /*tag= b
406..1773
/*tag= c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Location/Qualifiers 307..1773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /*tag= a
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA; 3677
                                                                                                                                                                                                                                                                                                                                                                             DA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TANGO 216 polypeptide
                                                                                                                                  English
                                                                                                                                                                                                                                                                                                                                                                          Sharp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            "TANGO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ------μγελlaIleIleAspGlnIleVal----Al
                                                                                                                                                                                                                                                                                                                                                                          'n,
                                                                                                                                                                                                                                                                                                                                                                             Fraser
                                                                                                                                                                                                                                                                                                                                                                             ဥ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                169
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4141
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     4261
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             185
```

The present sequence encodes a human TANGO 216 polypeptide. The specification also describes TANGO 266, TANGO 261, TANGO 262, and TANGO 267. The TANGO polypeptides can be used to modulate cellular proliferation, modulate cellular differentiation and/or modulate

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                       맑
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2 (1-218) x AAA75149 (1-3677)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
18
                                                                      밁
                                                                                                           Ś
                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         disorders, attelectasis, pulmonary congestion or oedema, emphysema, chronic bronchitis, bronchial asthma and bronchiectasis, intestinal disorders, spleen associated diseases, modulate renal disorders, treat cardiovascular disorders such as ischemic heart disease, modulate the proliferation, differentiation, and/or function of bone and cartilage cells and to treat bone and/or cartilage associated diseases or disorder. They may also be used to treat disorders associated with the ovaries, cerebral oedema, hydrocephalus, brain herriations, iatrogenic disease, inflammations, bacterial and viral meningitis, Alzheimer's bisease, cerebral toxoplasmosis, Parkinson's disease, multiple sclerosi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    cellular adhesion. The proteins can be used to treat any von Willebrand factor-associated disorder, regulate extracellular matrix structuring, cellular adhesion, and cell trafficking and/or migration, modulate cellular interactions, modulate adhesion in proliferative disorders, such as cancer, modulate the proliferation, differentiation, and/or function of cells that appear in the bone marrow, and leukocytes, treat bone marrow, blood and hematopoietic associated diseases and disorders.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 3677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ŏ
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          460
                                 176
                                                                        859
                                                                                                                  159
                                                                                                                                                                                                   139
                                                                                                                                                                                                                                               763
                                                                                                                                                                                                                                                                                         129
                                                                                                                                                                                                                                                                                                                                 703
                                                                                                                                                                                                                                                                                                                                                                             112
                                                                                                                                                                                                                                                                                                                                                                                                                  643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           520
                                                                                                                                                                                                                                                                                                                                                                                                                                                            97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        \vdash
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCCCAGGAGCAGCCCTCCTGCAGAAGAGCCTTTGATCTCTAC---TTCGTCCTGGACAAG 459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AlaGluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyr 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCT---TCTCAAGCAACTATTATTTTGCCATTAACTGGAGACAGAGGCAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrPheAlaProTyrSerValileIlePro------GlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyr 60
                              LeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSer 195
                                                                                                                                                                                                                                             ---GGTCTGGTGCCATCATATGCAGAGAAAGAGGCAAAGATATCCAGGTCACTTGGGGCT
                                                                                                                                                                                                                                                                                                                                                                Gln------MetProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsn 128
                                                                                                                                                                                                                                                                                                                                                                                                                  AGT C CAGTAGGAGAGACATATAT C CATGAAGGACTAAAGCTAGCGAATGAACAAATT CAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TCTGGGAGTGTGGCAAATAACTGGATTGAAATTTATAATTTCGTACAGCAACTTGCGGAG
                                                                        CAGCTTGAAAGAATTGCTGATTCCAAGGAGCAAGTTTTCCCTGTCAAAGGTGGATTTCAG
                                                                                                                GluGlyLysAlaTleIleAsp-----
                                                                                                                                                                                                 SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla
                                                                                                                                                                                                                                                                                     LeuGlyMetAsnPro-----ValGluGluValLys-----
                                                                                                                                                                                                                                                                                                                               ANAGCAGGAGGCTTGAANACCTCCAGTATCATAATTGCTCTGACAGATGGCAAGTTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrProValGly-------AspGlyIleLysMetHisGluThrValIleAsn 111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ----ATCAGTAAAAGGCTTGGAGGATTTAAAACGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AGATTTGTG-------AGCCCTGAAATGAGATTATCTTTCATTGTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          cancers, hydrocephalus and encephalitis, and treat hepatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1055 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       12.8
84.00
40.08%
21.83%
7.51%
                                                                                                                                                     -----GAACAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ü
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Parkinson's disease, multiple sclerosis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               881 G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                -GlnIleValAlaLeuAsnSerGlySerVal 175
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Η.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3677
55
46
75
76
                                                                                                                                                                                                   158
                                                                                                                                                                                                                                             819
                                                                                                                                                                                                                                                                                                                                 762
                                                                                                                                                                                                                                                                                                                                                                                                                  702
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        642
                                                                                                                                                            858
                                                                                                                                                                                                                                                                                         138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             519
                                                                        918
```

```
RESULT 35
AAA75157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
     cellular proliferation; cellular differentiation; cellular adhesion; von Willebrand factor-associated disorder; cell trafficking; cancer; hematopoietic associated disease; atelectasis; pulmonary congestion; oedema; emphysema; chronic bronchitis; bronchial asthma; bronchiectasis; intestinal disorder; spleen associated disease; renal disorder; cardiovascular disorder; ischemic heart disease; hydrocephalus; brain herniation; iatrogenic disease; inflammation; meningitis; halpheimer's Disease; cerebral toxoplasmosis; Parkinson's disease;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1003
AAA75157-59 encode human TANGO 216 proteins. The specification also describes TANGO 266, TANGO 261, TANGO 262, and TANGO 267. The TANGO polypeptides can be used to modulate cellular proliferation, modulate cellular differentiation and/or modulate cellular adhesion. The proteins can be used to treat any von Willebrand factor-associated disorder, regulate extracellular matrix structuring, cellular adhesion, and cell trafficking and/or migration, modulate cellular interactions, modulate cell adhesion in proliferative disorders, such as cancer, modulate the proliferation, differentiation, and/or function of cells that appear in the bone marrow, and leukocytes, treat bone marrow, blood and hematopoietic associated diseases and disorders, atelectasis, pulmonary congestion or oedema, emphysema, chronic bronchitis, bronchial asthma and bronchiectasis, intestinal disorders, spleen associated
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cDNA clone encoding a human TANGO 216 polypeptide
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15-JAN-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAA75157
                                                                                                                                                                                                                                                   Disclosure; Page -; 175pp; English
                                                                                                                                                                                                                                                                                    Novel human and murine secreted proteins designated TANGO 216, 261, 262, 266 and 267 useful as modulating agents of cellular processes, e.g. for treating cancer -
                                                                                                                                                                                                                                                                                                                                                                                                                  Barnes TM,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       01-MAR-2000; 2000WO-US05226
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WO200052022-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Homo sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    multiple sclerosis; hydrocephalus; encephalitis; hepatic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TANGO 266; TANGO 216;; TANGO 261; TANGO 262; TANGO 267;
                                                                                                                                                                                                                                                                                                                                                           P-PSDB; AAB18455.
                                                                                                                                                                                                                                                                                                                                                                                                                                                   (MILL-) MILLENNIUM PHARM INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                943
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluGluVal---ValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATACTAGCTCAGTCATGTACTGAAATCCTAGAATTGCAGCCCTCAAGTGTCTGTGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GCTCTTAAAGGAATA----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ValPheCysGln------------------------GluGlnIleLeuValThr 205
                                                                                                                                                                                                                                                                                                                                                                               2000-579269/54.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard;
                                                                                                                                                                                                                                                                                                                                                                                                                  Holtzman DA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99US-0122458.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Location/Qualifiers 307..1773
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             /product=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                /*tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3677
                                                                                                                                                                                                                                                                                                                                                                                                                  Sharp JD,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               "TANGO 216"
                                                                                                                                                                                                                                                                                                                                                                                                                    Fraser
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -ATTAATTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          disease;
disorder;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1002
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          942
```

ព្ធស្តុក្ខស្តុក្ខស្តុក្ខស្តុក្

```
당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-10-034-500-2 (1-218) x AAA75157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            treat disorders associated with the ovaries, and cerebral oedema, hydrocephalus, brain herniations, latrogenic disease, inflammations, bacterial and viral meningitis, Alzheimer's Disease, cerebral toxoplasmosis, Parkinson's disease, multiple sclerosis, brain cancers, hydrocephalus and encephalitis, and treat hepatic disorders. note: the present sequence does not appear in the specification; it was note:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 diseases, modulate renal disorders, treat cardiovascular disorders such as ischemic heart disease, modulate the proliferation, differentiation, and/or function of bone and cartilage cells and to treat bone and/or cartilage associated diseases or disorder. They may also be used to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 3677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                created using
                                               943
                                                                                                                                                                                                                       859
                                                                                                                                                                                                                                                               159
                                                                                                                                                                                                                                                                                                             820
                                                                                                                                                                                                                                                                                                                                                     139
                                                                                                                                                                                                                                                                                                                                                                                                763
                                                                                                                                                                                                                                                                                                                                                                                                                                         129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          643
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             460
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   403
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      703
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            μ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gln-----MetProProGlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsn 128
GluGluVal---ValValLeuArgGlyValAsnPhe 216
                                             ATACTAGCTCAGTCATGTACTGAAATCCTAGAATTGCAGCCCTCAAGTGTCTGTGTGGGG 1002
                                                                                                                                 GCTCTTAAAGGAATA---
                                                                                                                                                                            LeuValAspGlyLeuGlnLeuGlnAsnProAlaValCysGlnGluPheValAsnSer
                                                                                                                                                                                                                  CAGCTTGAAAGAÄTTGCTGÄTTCCAAGGAGCÄÄGTTTTCCCTGTCAAAGGTGGATTTCAG
                                                                                                                                                                                                                                                             GluGlyLysAlaIleIleAsp-----GlnIleValAlaLeuAsnSerGlySerVal
                                                                                                                                                                                                                                                                                                                                                   SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla
                                                                                                                                                                                                                                                                                                                                                                                            ---GGTCTGGTGCCATCATATGCAGAGAAAAGAGGCAAAGATATCCAGGTCACTTGGGGCT: 819
                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuGlyMetAsnPro------ValGluGluValLys-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ANAGCAGGAGGCTTGAANACCTCCAGTATCATAATTGCTCTGACAGATGGCAAGTTGGAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AGTCCAGTAGGAGAGACATATATCCATGAAGGACTAAAGCTAGCGAATGAACAAATTCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ThrProValGly------AspGlyIleLysMetHisGluThrValIleAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TCT---TCTCAAGCAACTATTATTTTGCCATTAACTGGAGACAGAGGCAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThrPheAlaProTyrSerValIleIlePro-----GlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AGATTTGTG-----AGCCCTGAAATGAGATTATCTTTCATTGTGTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyr 60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TCTGGGAGTGTGGCAAATAACTGGATTGAAATTTATAATTTCGTACAGCAACTTGCGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerGlySerMetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GCCCAGGAGCAGCCCTCCTGCAGAAGAGCCTTTGATCTCTAC---TTCGTCCTGGACAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AlaGluValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyr 20
                                                                                      ValPheCysGln-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -------ATCAGTAAAGGCTTGGAGGATTTAAAACGTGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BP; 1055 A;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                information provided.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              40.08%
21.83%
7.51%
21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12.8
                                                                                                                                                                                                                                                                                                        ------GAACAAGCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (1-3677)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          880
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Indels:
                                                                                      ------GluGlnIleLeuValThr
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       <u>ი</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       965
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ħ,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3677
55
46
75
76
                                                                                                                                                                         195
                                                                                                                                                                                                                    918
                                                                                                                                                                                                                                                             175
                                                                                                                                                                                                                                                                                                                                                   158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    762
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              642
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          76
                                                                                                                                 942
                                                                                                                                                                                                                                                                                                        858
                                                                                                                                                                                                                                                                                                                                                                                                                                       138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       BBM
```

ঠ 밁 밁 S

8

5

ঠ

S

밁 ક 밁 S 밁 ঠ 밁 ş 밁 \$ 밁

δ 밁 ঠ

```
RESULT 36
AAQ30183/c
                                               밁
밁
                    Ś
                                                                     S
                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                             US-10-034-500-2 (1-218) x AAQ30183
                                                                                                                       Query Match:
DB:
                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1003
                                                                                                                                                                                                                                                      A bovine brain cDNA library in lambda ZAP was screened with a 450 bp EcoRY/ApaI fragment of p3CGS-5 cDNA corresp. to p3CGS-5 nucleotide position numbers 1-452. Forty putative clones were picked from this first screen, of which six were randomly selected and purified. Each of the clones was spotted onto a lawn of host XL1 cells and screened with a 370 bp PstI/SmaI fragment of p3CGS-5 cDNA. Six putative clones were obtd. and sequenced. Clone pBBCGSPDE-7 contains an insert contg. an ORF encoding a 942 residue protein that is nearly identical to the adrenal gland cGS-PDE isozyme.
                                                                                                                                                                                                                      Sequence 3789
                                                                                                                                                                                                                                                                                                                                                                                                         New DNA encoding mammalian cyclic nucleotide phospho-di:esterase - and derived vectors and host cells, useful for screening cpds. for inhibitory or activating activity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAQ30183;
                                                                                                                                                                                                                                               See also
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              19-APR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     19-MAR-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AAQ30183
                                                                                                                                                                                  No:
                                                                                                                                                                                                                                                                                                                                                                                   Example 5B;
                                                                                                                                                                                                                                                                                                                                                                                                                                                           WPI; 1992-382051/46.
P-PSDB; AAR28408.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       20-APR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        WO9218541-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Bos taurus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        phosphodiesterase;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Cyclic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Bovine brain
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (UNIW ) UNIV WASHINGTON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ò
                 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAGGAATTTCAGATTGTCTTAAGTGGAAGAGGATTC
AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG-----
                                              CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                    LeuGluIlePheGlyArgLeu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GMP;
                                                                                                                                                                                                                                               AAQ30161-91.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   standard; DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    stimulated; cyclic; nucleotide,
terase; cGS PDE; hybridisation;
                                                                                                                                                                                                                                                                                                                                                                                   Page
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           clone pBBCGSPDE-7.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   (first entry)
                                                                                                                                                                                                                     BP; 817 A; 1134 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                91US-0688356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       92WO-US03222.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                  91; 133pp; English.
                                                                                                                               13.4
84.00
36.00%
25.33%
7.51%
                                                                                                                      13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Charbonneau
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ВP
                                                                                               (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    nucleotide;
                                                                                                                                                                                                                      1083 G;
                                                                                                                                Conservative: Mismatches: Indels:
                                                                                                                                                                    Length:
Matches:
                                                                                                                      Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Η,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sonnenburg
                                                                                                                                                                                                                     755 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1038
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    bovine
                                                                     -ThrProValGlyAspGly 102
                                                                                                                    3789
38
16
50
46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               X
-GTAGCCCTTCTT
2122
                     122
```

```
RESULT 37
AAA81478
IID AAA81
XX AAA81
XX O4-DE
XX Neiss
XX Neiss
XX Neiss
XX Neiss
XX Weiss
XX IISola
PH Frazz
PI Rapp
XX WPI;
XX WPI;
XX WPI;
XX The I
CC The I
CC Neiss
CC AAA88
CC AAA88
CC AAA88
CC AAA88
CC AAA88
CC Seque
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                           Frazer CM, H
Masignani V,
Rappuoli R,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1878
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2112
                                                                                                                                                                                                               Isolated nucleotide sequences of Neisseria meningitidis which caused in the diagnosis and treatment of N. meningitidis infection other Neisserial infections, for example, N.gonorrhoea -
                                                                                                                                                                                                                                                                                                                                                                                                        09-OCT-1998;
30-APR-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                      08-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   WO200022430-A2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Neisseria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  antigen; vaccine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Neisseria meningitidis; Neisseria gonorrheae; genome; immunogenic;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              N. meningitidis partial DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-DEC-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAA81478;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAA81478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1992
                                                                                                  The present invention describes methods of obtaining immunogenic proteins from Neisseria genomic sequences. AAA81453 to AAA82414 represent specifically claimed Neisseria meningitidis genomic DNA sequences; AAA81260 to AAA81303 and AAB25620 to AAB25663 represent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     20-APR-2000
                     Neisseria DNA sequences and their corresponding proteins; AAA81254 and AAA81304 to AAA81321 represent PCR primers used in isolation of Neisseria meningitidis DNA sequences; and AAA81322 AAA81452 represent Neisseria meningitidis MenB polynucleotide OB sequences, which are all used in the exemplification of the pres
                                                                                                                                                                                 Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        123
                                                                                                                                                                                                                                                                                                                                                                           (CHIR ) CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ThraspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluvalvalvalLeuArgGlyValAsnPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluPhe-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrAsnProAsnValCys--
                                                                                                                                                                                                                                                                               2000-318079/27
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             À CAGAA C C GGC CAGT GT C GGC CAGT CAATTTT GT AGTT ATT GAT GAAATT CATGT C C T G
                                                                                                                                                                                 7;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          standard;
                                                                                                                                                                                 Page 532-547; 1760pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  meningitidis.
                                                                                                                                                                                                                                                                                                                           Hickey E,
, Galeotti
                                                                                                                                                                                                                                                                                                              Pizza M;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ₽,
                                                                                                                                                                                                                                                                                                                                                                                                        98US-0103794.
99US-0132068.
                                                                                                                                                                                                                                                                                                                                                                                                                                                     99WO-US23573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MenB;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                diagnosis;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               entry)
                                                                                                                                                                                                                                                                                                                           Peterson
C, Mora
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ds.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             sequence gnm_26 SEQ ID NO:26.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                infection; antibacterial; identification;
                                                                                                                                                                                                                                                                                                                             द्रध्
                                                                                                                                                                                                                                                                                                                           Tettelin
Ratti G,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
                                                                                                                                                                                                                                                                                                                             H, Venter
Scarselli
                                                                                   proteins; AAA81254 to
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -PheHisValVal 152
                                                                                                                                                                                                                                                                                                                         M,
                        present
                                                                                                                                                                                                                                                                                                                             Scarlato
                                         ORF
                                                                     in the
                                                                                                                                                                                                                                 can be
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     206
                                                                                                                                                                                                                                                                                                                              <
```

```
RESULT 38
AAF21544/c
ID AAF21
XX
AC AAF21
XX
DT 13-MA
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 5555555555555555555555555555
                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                invention. The nucleic acid sequences, protein sequences, and antibodies against them, can be used in the manufacture of a composition. The composition can be used as a medicament (or in the manufacture of a composition can be used as a medicament (or in the manufacture of a composition can be used as a medicament (or in the manufacture of a composition can be used as a medicament or in the manufacture of a composition of treating, preventing or diagnosing infection due to components of vaccines against meningococcus B; against all serotypes; and/or against all pathogenic Neissariae. Identification of sequences from the bacterium will also facilitate production of biological probes, particularly organism-specific probes. Attempts to make efficacious Meningococcus B vaccines have failed mainly due to antigen tolerance. Multivalent vaccines have also been tried but none have successfully covercome antigenic variability. The provision of further, complete exposed proteins that may be presumed targets for the immune system and which are not antigenically variable or at least more conserved than
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                47204 TCGCCTTCTTCAACGACGTTACCCGGCTGCTCGGTTAGATTTTACGTTTCGGAATGCCGT 47263
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                47324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          47264
                                                                                                                                                                          47636
                                                                                                                                                                                                                                                  47576
                                                                                                                                                                                                                                                                                                                            47516
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Local
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    other more variable regions.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              117
                                                          AAF21544;
                                                                                             AAF21544 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   102
                                                                                                                                                                                                             192
                                                                                                                                                                                                                                                                                       172
                                                                                                                                                                                                                                                                                                                                                                157
                                                                                                                                                                                                                                                                                                                                                                                                                                        137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACTGATGATGTTGGGGCATATCGCCTTTGGCACTTGCCGACTTCACCATCCAAGACATCCG 47383
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTGAAACCGCATTCCGCACCACAAGGAACTGACAATGAAACTGAAACAGATTGCTTCCGC 47323
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Val-AsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGl 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla
                                                                                                                                                                        CGAATCGTTCGGGCTGGCGCAGTCGCAA 47663
                                                                                                                                                                                                         eValAsnSerValPheCysGlnGluGln
                                                                                                                                                                                                                                                                                                                                                                                                                                    LysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAs 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CGTCGAAGGCTTGCAGCGTACCGAGCCGAGTACCGTATTCAACTACCTGCCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 yIleLysMet----
                                                                                                                                                                                                                                                  CGGCTCGCTCAACATCACCGGCGCAAAAATGCTGCAAAACGACGCCATTAAGAAAAACCT 47635
                                                                                                                                                                                                                                                                                     rGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPh
                                                                                                                                                                                                                                                                                                                            CGTACGCGTCGAAACTGCGGACGGGCAGCTCCTGCTGACCGTTATCGAACGCCCCACCAT
                                                                                                                                                                                                                                                                                                                                                                                                       CAAAAGCCTGTACGCCACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GTCAAAGTCGGCGACACCTACAACGACACACGCCAGTGCCATC-----AT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluVa 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 52253
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ВP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         x AAA81478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              624
84.00
38.24%
21.76%
7.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 12877 A; 15510
                                                                                               DNA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                21
                                                                                                                                                                                                                                                                                                                                                            --AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----HisGluThrValIleAsnGlnMetProProGlnAl 117
                                                                                             349980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (1-52253)
                                                                                               ВP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ü
                                                                                                                                                                                                               201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   13103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ç,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10761 T; 2 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              52253
37
28
58
47
                                                                                                                                                                                                                                                                                                                                                                                                       -GGTTTCTTTGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 47482
                                                                                                                                                                                                                                                                                                                                                                                                         47515
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       47435
```

13-MAR-2001

(first entry)

```
S
                                                                                                                                                                                                                                                                         S
                                                밁
                                                                                                            US-10-034-500-2 (1-218) x AAF21544 (1-349980)
                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                180900
                                                                                                                                                                                                                                                                                                                                                                                             sequences which overlap each other at the beginning and end of each sequence by 49980 bp (i.e. the last 49980 bp of AAF21544 is repeated at the beginning of AAF21607, the last 49980 bp of AAF21507 are repeated at the beginning of AAF21608, and so on). AAF21545 to AAF21588 encode the Neisseria proteins given in AAB58550 to AAB58533, and AAF21589 to AAF21606 represent PCR primers which are used in the exemplification of the present invention. The NMB genome and fragments from it have antibacterial activity, and can be used in vaccines and gene therapy. Neisseria nucleic acids, proteins and/or antibodies which binds to the proteins can be used in compositions for treating or preventing infection due to Neisserial bacteria or as a diagnostic reagent for detecting the presence of Neisserial bacteria or of antibodies raised to Neisserial bacteria.
                                                                                                                                                                                                                                                                                                                  bacteria. Computers, computer memory, computer storage medium or computer databases can be used in a search to identify open reading frames (ORFs) or coding sequences within the NMB genome. The DNA sequences provide further opportunities to find antigenic or immunogenic proteins which are more effective in vaccines than the outer membrane proteins currently
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             The present invention describes the full length genome of Neisseria meningitidis B (NMB). The sequences in AAF21544 and AAF21607 to AAF21613 represent fragments of the NMB genomic sequence, as the sequence was too long to go in a record on its own it was split into 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Neisseria meningitidis B full length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     30-APR-1999;
08-OCT-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Pizza M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Neisseria meningitidis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   diagnosis;
                                                                                                                                                            Match:
                                                                                                                                                                                                                            8
0
:
                                                                                                                                                                                                                                                                       Sequence 349980
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          WPI; 2000-647603/62.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        28-FEB-2000; 2000GB-0004695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     08-MAR-2000; 2000WO-US05928
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     WO200066791-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Neisseria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (GENO-)
                83
                                                                              63
             Val-AsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGl 102
                                             TCGCCTTCTTCAACGACGTTACCCCGGCTGCTCGGTTAGATTTTACGTTTCGGAATGCCGT 180841
                                                                  AlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CHIRON CORP.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INST GENOMIC RES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ú
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Appendix A; 692pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hickey E,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    meningitidis; Neisseria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                meningitidis B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antigen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Grandi G;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mora M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       99US-0132068.
99WO-US23573.
                                                                                                                                                                                                                                                                       BP;
                                                                                                                                          1.01e+04
84.00
38.24%
21.76%
7.51%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                dis; Neisseria gonorrheae; immunogenic; vaccine;
detection; infection; gene therapy; antibacterial;
                                                                                                                                                                                                                                                                       83241 A; 85091
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Peterson J, Tettelin H,
Ratti G, Scarselli M,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               nucleotide sequence
=
::
                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                       Ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           genome sequence and prevent Neisserial i
                                                                                                                                                                                                                                                                       95206
                                                                                                                                                                                                                                                                       <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SEQ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Venter JC,
Scarlato V,
                                                                                                                                                                                                                                                                       86442 T; 0 other;
                                                                                                                                       349980
37
28
58
47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IJ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NO:1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             d open reading infections -
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rappuoli R;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Masignami V;
                                                                                                                                                                                                                                                                                                                                                                                                                             infection
                                                                            82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                at
```

```
RESULT 3:
ADV50153
ID AV50153
ID T 14-1
XX AVI
XX AVI
AC AAVI
XX BS;
KW SS;
KW in 1
XX Home
XX
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180468 CGAATCGTTCGGGCTGGCGCAGTCGCAA 180441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   180588
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              180668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        180780 ACTGATGATGTTGGGCATATCGCCTTTGGCACTTGCCGACTTCCACCATCCAAGACATCCG 180721
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            180840 CTGAAACCGCATTCCGCACCAACAAGGAACTGACAATGAAACTGAAAACAGATTGCTTCCGC 180781
The ReproSA-1 polypeptide, it's fragments, or nucleic acid encoding them are used in contraceptive vaccines to generate an anti-sperm response.
                                                                                                                                            Sperm-specific polypeptide ReproSA-1 and related nucleic acid - transformed cells and antibodies, useful in contraceptive vaccines or compositions, and for diagnosis and treatment of infertility
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Homo
                                                                                                                                                                                                                                                                   WPI; 1998-480771/41.
P-PSDB; AAW77323.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  18-FEB-1997;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17-FEB-1998;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Human ReproSA-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14-DEC-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAV59153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAV59153 standard;
                                                                                       Claim 16; Fig 1; 62pp; English
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    WO9836073-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ss; human; ReproSA-1; contraceptive; anti-sperm; fertility;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        20-AUG-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  137
                                                                                                                                                                                                                                                                                                                                                                                                                            (REPR-) REPROGEN INC.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Vitro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           rGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPh 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAAAAGCCTGTACGCCACC----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               lLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAs 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               sapiens
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 eValAsnSerValPheCysGlnGluGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CGGCTCGCTCAACATCACCGGCGCAAAAATGCTGCAAAAACGACGCCATTAAGAAAAAACCT 180469
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        р------AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSe 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GTCAAAGTCGGCGACACCTACAACGACACACACGGCAGTGCCATC-----AT 180622
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTCGAAGGCTTGCAGCGTACCGAGCCGAGTACCGTATTCAACTACCTGCCC------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 yIleLysMet-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CGTACGCGTCGAAACTGCGGACGGGCAGCTCCTGCTGACCGTTATCGAACGCCCCACCAT 180529
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   aAlaValIleLeuLeuThrAspGlyHisAspAsnLeuGlyMetAsnProValGluGluVa
                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              fertilisation.
                                                                                                                                                                                                                                                                                                                                                                 Neilson
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 (first entry
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     97US-0039574
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             98WO-US03513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  coding sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Location/Qualifiers
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /product= "ReproSA-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               *tag=
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDNA;
                                                                                                                                                                                                                                                                                                                                                                 Ę,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----HisGluThrValIleAsnGlnMetProProGlnAl 117
                                                                                                                                                                                                                                                                                                                                                                 Schneider PA,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ВÞ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    201
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            protein'
                                                                                                                                                                                                                                                                                                                                                                 Ž
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       --GGTTTCTTTGACGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       180589
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     180669
```

```
Best Local Si
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x AAV59153 (1-2573)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Antibodies can also be used as topical contraceptive (spermicide), also antisense sequences, ribozymes and triplex-forming molecules. Detection, by reaction with immobilised peptides, of anti-(I) antibodies (in serum, semen, saliva, cervical or vaginal mucosa) is used to diagnose immunological infertility and to monitor the effect of vaccination. nucleotide fragments are used to diagnose infertility-associated mutations in the gene encoding Repro-SA, and for isolation of related sequences. Peptides and anti-idiotypic antibodies against the antibodies are used to inactivate the antibodies i.e. to increase fertility and may be added to sperm samples before in vitro
                                                                                                                                     1454
                                                                                                                                                                                                                                1394
                                                                                                                                                                                                                                                                                                                        1334
                                                                                                                                                                                                                                                                                                                                                                                                                1274
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1058
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 2573 BP;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      fertilisation.
                                          1487
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        938
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                887
                                                                                                                                                                                                                                                                                                                                                                   137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              998
  193
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         w
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GTTGTACTTACCTGTCTGAAGGACAAGGATGAATAC-----GTGAAGAAAAATGCT 937
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValThrAlaSerCysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSerGly 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TCTACTTTAATTAGAGAGATTGCAAAACATACACCCGAGCTTTCACAGCTGGTAGTTAAC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAGGAGGGGTTGCTGCCGTGATTGACTGCATTGGGTCCTGCAAAGGGAACACACGGCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerMetMetLysHisValAlaValArgGluProLysIle---GluLeuAlaLysGlu
  ValAsnSerVal 196
                                                                                                                                                                                                                                                                                                                     ATAAAGAATATCCTGCAAAAATGTACCTACTTACCAGCCCTTGAACCATTTCTATATGAT 1393
                                                                                                                                                                                                                                                                                                                                                                                                                CTTTCTTTGTACATGTCAACAGAAAGTTCTGAGGATCTCCAAGTAAAAAGTAAAAAAGCC 1333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyAspGlyIleLysMetHisGlu-----ThrValIleAsnGlnMetProProGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATCATATTAAGGCTGCAGCTGCTTGGGCCTTAGGACAGATTGGAAGACACACTCCT--- 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnThrIleLysSer------AspLeuGluIlePheGlyArgLeuThrProVal 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GCAGTCATCATTTCTAAGGGTGTACCCCAGTTGTCAGTCTGCTTGTCAGAAGAACCGGAA 1171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerVallleIleProGlnGly-----SerTrpAsnSerCysValAlaGluCysAlaVal 83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCTGGCATCATGATGCTTGGT-----TATGTAGCAGCTCATTCTGAGAACCTAGCAATG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla-------ProTyr 65
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ala----
                                             ---GGCCTTAAAAAAGTTCAAGAGATAAAAGCAGAACCTGGTTCTCCTCCTTCAAGAATAC 1543
                                                                                     AspGlyLeuGlnLeuLeuGlnAsn---
                                                                                                                                   AGCAAAGCTCGACGACTTTTT------GTAACAAGTGGT------
                                                                                                                                                                             AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuVal 177
                                                                                                                                                                                                                                GCTCCTCCCAATATTCTGAAACATGTGGTTGGACAGTTCAGTAAGGTGCTGCCGCATGAT
                                                                                                                                                                                                                                                                      ThrAsnProAsnValCysPheHisValValSer-----PheAlaAspAsp
                                                                                                                                                                                                                                                                                                                                                                   ValLysSerIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                           AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGlu 136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GAACACGCACGGGCTGTTGCAGTCACAAATACTTTGCCAGTTCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         754 A; 532 C;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8.75
83.50
38.93%
21.72%
7.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           586 G; 701 T; 0 other;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Indels:
                                                                                     ----ProAlaValCysGlnGluPhe 192
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2573
53
42
78
71
14
                                                                                                                                                                                                                                                                                                                                                                   ŢyrGln 142
                                                                                                                                                                                                                                                                             157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1057
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     41
                                                                                                                                                                                                                                1453
                                                                                                                                     1486
RESULT 40

AAC3 9216

ID AAC3 9216

ACC XXX ACC XXX ACC AAC3

XXX ACC AAC3

XXX Hybs

DE Arak

XXX Prot

X
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              05-MAY-1999;
06-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                25-MAR-1999;
29-MAR-1999;
01-APR-1999;
                   10-JUN-1999;
10-JUN-1999;
14-JUN-1999;
16-JUN-1999;
16-JUN-1999;
17-JUN-1999;
18-JUN-1999;
                                                                                                                                                                             25-MAY-1999;
27-MAY-1999;
28-MAY-1999;
01-JUN-1999;
03-JUN-1999;
04-JUN-1999;
07-JUN-1999;
08-JUN-1999;
                                                                                                                                                                                                                                                                                                                                                                14-MAY-1999;
18-MAY-1999;
19-MAY-1999;
20-MAY-1999;
21-MAY-1999;
21-MAY-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1544 ATCAACAGTATT 1555
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           28-APR-1999
30-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAC39216;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             04-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-MAR-1999
23-MAR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-FEB-1999;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      25-FEB-2000;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   06-SEP-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP1033405-A2.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Arabidopsis thaliana.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17-OCT-2000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             14-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  14-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          14-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             11-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     07-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             06-MAY-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             23-APR-1999
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40
99US-0137528
99US-0137502
99US-0137724
99US-0138094
99US-0138540
99US-0138540
99US-0139119
99US-0139452
99US-0139453
99US-0139454
99US-0139454
                                                                                                                                                                                                                                                                                                                          99US-
```

Ś

문

8

Ś

3 Q 밁 밁 Ś 밁 á 밁 Ś 밁 S 밁 5 밁 Ş 밁 Ś 밁 á 밁 Ś

밁

```
Arabidopsis thaliana DNA fragment SEQ ID NO:
                                                                                                             AAC39216 standard; DNA; 2135
                                       (first entry)
                                                                                                               ΒP
   23804.
```

Hybridisation assay; genetic mapping; gene expression control; protein identification; signal transduction pathway; metabolic pathway; promoter; termination sequence; ss.

2000EP-0301439 99US-0134216 99US-0134218 99US-0134221 99US-0134221 99US-0134370 99US-0134768 99US-0134941 99US-0135134 99US-01351353 99US-0132048. 99US-0132407. 99US-0132484. 99US-0130510. 99US-0130891. 99US-0131449. 99US-0132485. 99US-0132486. 99US-0132487. 99US-0132863. 99US-0126785 99US-0127462 99US-0121825 99US-0136782 99US-0137222 99US-0128714 9908-0136021 99US-0130449 99US-0123548. -0128234 -0136392

```
Alignment Scores:
Pred. No.:
Score:
Percent Similarity:
Best Local Similarity:
Query Match:
                                              Best 1
Query
DB:
밁
             8
                                                                                                            US-10-034-500-2
                                                                                                           18-AUG-1999
20-AUG-1999
20-AUG-1999
23-AUG-1999
25-AUG-1999
25-AUG-1999
27-AUG-1999
28-BP-1999
28-BP-1999
29-SEP-1999
20-CCT-1999
21-CCT-1999
22-CCT-1999
22-CCT-1999
23-CCT-1999
23-CCT-1999
24-CCT-1999
25-CCT-1999
26-CCT-1999
28-CCT-1999
1094
              в
ÁCAAAGAAGGCAGAAAGCCTTAACATCAGCAGAGATGTATCAGGAGAAGGTGTTCAACAA 1153
       (1-218)
                                                                                                           9908-0149426.
9908-0149723.
9908-0149723.
9908-0149929.
9908-0150866.
9908-0151066.
9908-0151066.
9908-0151303.
9908-01513363.
9908-0151363.
9908-0151363.
9908-0151363.
9908-0151375.
9908-015403.
9908-015446.
9908-01546596.
9908-01546596.
9908-01546596.
9908-01546596.
9908-01546596.
9908-01546596.
9908-0159333.
9908-0159333.
9908-0159333.
9908-0159339.
9908-0159339.
9908-0159339.
9908-0159339.
9908-0159339.
9908-0159339.
9908-0159339.
9908-0160980.
9908-0160980.
9908-0161404.
9908-0161359.
9908-0161406.
9908-0161359.
9908-0161406.
9908-0161359.
9908-0161359.
9908-0161361.
                             ×
                                              7.68
83.00
37.45%
22.01%
7.42%
                              AAC39216
                             (1-2135)
                                            Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                              2135
57
40
88
74
14
              23
```

18-JUN-1999
19-JUL-1999
10-JUL-1999
10-JUL-1999
11-JUL-1999
11-JUL-1999
11-JUL-1999
11-JUL-1999
12-JUL-1999
12-JUL-1999
12-JUL-1999
12-JUL-1999
13-JUL-1999

9908-0139456.
9908-0139459.
9908-0139459.
9908-0139461.
9908-0139661.
9908-0139661.
9908-0139662.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-014062.
9908-01406.
9908-01406.
9908-01406.
9908-01406.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.
9908-0146.

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                     밁
                                                                                                                                                 Ś
1751 GAAGAAGCAGTTGAAGGAGAAGGGCGTCGAGGCTCTGGAGCTAAGATTCTCCGTGGT 1807
                                                                                                                                                                                                           1649 CGTGGCTTAAGAGCTCTTCTAGAAAGCATCCTCATGGACTCTATGTACGAGATTCCCGAC 1708
                                                                                                                                                                                                                                                                                                           1592 ACAGAAAGCGCACTG---CGGCTTATAGCTAGAAAAGCAATAACGAAAAACACGGGTGCT 1648
                                                                                                                                                                                                                                                                                                                                                                                                                      1544 AAGCAATACAAAAAGATGTACCAGATGAAT---AGTGTAAAGCTGCAT------TTC 1591
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1508 -----ATGCAGGTGTTGACAGAACCCAAGAACGCTCTTGGA------ 1543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1451 TTTGTTGGACGATTTCCAGTTCTCGTCAGTTTGTCTGCTTTGACTGAGAACCAGCTT--- 1507
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1394 AACCTAATGGAAACTGTGGAAAGCAGTGACCTGATTGCTTATGGT---TTGATTCCTGAA 1450
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1334 GGTGCTCCTGTACGTGCCAACATGAGGGCTGGTGGTGTTACAAACGCCGCTGTTGCATCA 1393
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1274 GCTTTTGTAGACATTGAAAAGACTATCTCAGAGAGGCGCCCATGATTCTTCAATAGGGTTT 1333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1214 CACCCTAGAGGTGACAATATCCAGATAGACACAAAGGACATACTCTTCATATGTGGTGGT 1273
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1154 GCATTGCTMANAATGCTGGAAGGAACAATTGTAAATGTACCTGAGAAAGGCGCTAGGAAA 1213
                                                                                                     1709 GAGGGTACAGGCAGCGATATGATA------GAAGCGGTTGTGGTGGAT 1750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            115 ProGlnAlaAlaValIIeLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnProVal 134
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   100 GlyAspGly------IleLysMetHisGluThrValIleAsnGlnMetPro 114
                                                                                                                                                 186 ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr 205
                                                                                                                                                                                                                                                       174 -----SerValleuValAspGlyLeuGlnLeuLeuGlnAsn 185
                                                                                                                                                                                                                                                                                                                                                               155 AlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly--- 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                    135 GluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPhe 154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   42 AlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThr 61
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 41 Glu----- 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               24 -----MetMetLysHisValAlaValArgGluProLysIleGluLeuAlaLys 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81 CysAlaValAsnThrIleLys---SerAspLeuGluIlePheGlyArgLeuThrProVal 99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62 PheAlaProTyrSerValIleIleProGlnGlySer---TrpAsnSerCysValAlaGlu 80
                                   GluGluValVal------ValLeuArgGly 213
```

Search completed: April 8, 2003, 05:25:08 Job time : 1513 secs

0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

```
Command line parameters:

-MODEL-frame+_p2n.model -DEV=xlh
-O_/Ggn2_1/USPTO_spool/US10034500/runat_02042003_092745_19735/app_query.fasta_1.391
-OB=Issued_Patents_NA -OPMT-fastap -SUPFIX=rni -MINMATCH=0.1 -LOOPCL=0
-LOOPEXT=0 -UNITS-Dits -START=1 -END=-1 -MAXTIX=blosum62 -TRANS-human40.cdi
-LIST=45 -DOCALIGN=200 -THR_SCORS=pct -THR_MAX=100 -THR_MIN=0 -ALIGN=40
-MODE=LOCAL -OUTFWT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0 -MAXLEN=200000000
-USER=US10034500_@CGN 1 1 32 @runat 02042003 092745 19735 -NCPU=6 -ICPU=3
-NO_XLPXY -NO_MMAP -LARGEQUERY -NCB_SCORES=0 -WAIT -LONGOG -DEY_TIMEOUT=120
-WARN_TIMEOUT=30 -THREADS=1 -XGAPOP=10 -XGAPEXT=7
-YGAPÖF=10 -YGAPEXT=0.5 -DELDP=6 -DELEXT=7
                                                                                                                                                                                                                            Regult
No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Minimum DB seq length: 0
Maximum DB seq length: 200000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Title:
Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Run on:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Scoring table:
                                                                                                      a
                                                                                                                                                                                                                                                                                                          Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.
                                                                                                                                                                                                                            Score
 91.5
91.5
96
86
83.5
83.5
80.5
80.5
79.5
79.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  April 8, 2003, 05:01:54; Search time 49 Seconds (without alignments) 1364.399 Million cell updates/sec
                                                                                                                                                                                                                            Match
                                                                                                                                                                                                                                                                                                                                                                              Issued Patents NA:*

1: /cgn2_6/ptodata/1/ina/5A_COMB.seq:*
2: /cgn2_6/ptodata/1/ina/5B_COMB.seq:*
3: /cgn2_6/ptodata/1/ina/6A_COMB.seq:*
4: /cgn2_6/ptodata/1/ina/6B_COMB.seq:*
5: /cgn2_6/ptodata/1/ina/BTCMB.Seq:*
6: /cgn2_6/ptodata/1/ina/backfIles1.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           441362 seqs, 153338381 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2
1119
                                                                                                                                                                                                                                            Query
 AEVTASCTKRVESYNYLVDY.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Copyright
                                                                                                                                                                                                                        Length
3043
3181
3668
3686
2556
22556
11380
11380
11380
3288
3206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GenCore version 5.1.4_p5_4578 (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                            몂
              US-09-049-698-16

US-09-049-698-18

US-09-206-942-33

US-09-221-017B-874

US-09-221-017B-960

US-08-968-563-5

US-08-969-683A-5

US-08-969-683A-5

US-09-297-928-1

US-09-296-942-42
                                                                                                                                                                                                                                                                              SUMMARIES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    .QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                        Description
                                              Sequence
Sequence
Sequence
Sequence
Sequence
                                                                                                                                   Sequence
Sequence
              Sequence
Sequence
Sequence
                                                                                                                                                                      Sequence
                                                                                                                                                                                      Sequence
                                                16, Appl
18, Appl
36, Appl
36, Appl
874, App
960, App
960, Appl
5, Appli
1, Appli
                              Appl
Appl
Appl
Appl
```

į	5	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13
	J	٥.		რ	٥.	76.5	φ,	٥,	77	77	77	77	77	77	77.5																	79	
		•	•	•	•	•	•	6.8	•	•	•	•	•	•	•	•	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	•	7.1		7.1	7.1	7.1	7.1	7.1	7.1
,	199	86	74	96	w	83	0	2178	71	4	99	φ	ð	N	037	15894	983	13	13	13	4131	13	13	13	73	78	78	78	78	78	78	3789	78
	<b>ب</b>	4	μ	4	۲	4.	4	4	4	W	w	N	N	ب	4.	_	٢	v	ω	_	ب	ш	ب	μ	<u> </u>	Ŋ	ω	۳	_	۳	μ.	<u> </u>	۳
	-08-485-284A	-08-961-527-5	-08-119-12	-08-961-527-1	8-119-125A-1	-09-245-248B-	-09-193-562D-2	-08-936-165A-1	-08-961-527-1	-08-481-435-	8-961-08	-08-600-993A	08-245-51	08-470-179-	-09-103-840A	08-905-	08-3	-US92-03222	09-139-491-3	08-455-52	-455-526-3	-08-479-532-3	-08-297-510-3	-08-297-494-3	07-872-644-3	-US92-03222-	09-139-491-4	-08-455-525	-08-455-526-4	-08-479-532-4	US-08-297-510-42	-08-297-494-	US-07-872-644-42
	equence 3.	equence 54,	equence 2,	equence 143	equence 1,	equence 54,	equence 27,	Ap	equence 145, Ap	equence 5,	equence 1, Appl	equence 3,	equence 3, Appl	equence 93,	Sequence 2,	equence 1,	1,	equence 38,	equence 38,	equence 38,	equence 38,	equence 38,	equence 38,	equence 38,	equence 38,	equence 42,	equence 42,	equence 42,	equence 4	equence 42,	equence 42, Ap	æ	, Ap

## ALIGNMENTS

a

a

```
US-09-049-698-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 16, Application US/09049698 Patent No. 6368792
                                              ZIP: 60064-3500

ZIP: 60064-3500

COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/049,698
FILING DATE:
                                                                                                                                                                                                                                                                                                                           APPLICANT: HAYDEN, MARK
APPLICANT: KLASS, MICHAEL R.
APPLICANT: ROBERTS-RAPP, LISA
APPLICANT: RUSSELL, JOHN C.
APPLICANT: STROUPE, STEPHEN D.
TITLE OF INVENTION: REAGENTS ANI
TITLE OF INVENTION: USEFUL FOR I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: Abbott Laboratories
                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                          Abbott Park
                                                                                                                                                                                                                                                              100 Abbott
                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COLPITTS, TRACEY L. FRIEDMAN, PAULA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COHEN, MAURICE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        BILLING-MEDEL,
                                                                                                                                                                                                                                                                                                                         USEFUL FOR DETECTING TRACT
                                                                                                                                                                                                                                                                                                                51
                                                                                                                                                                                                                                                            Park Road
   08/828,856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PATRICIA
                                                                                                       2.0
                                                                                                                                                                                                                                                                                                                                                DISEASES
                                                                                                                                                                                                                                                                                                                                                                  FOR THE
                                                                                                                                                                                                                                                                                                                                                  ę
                                                                                                                                                                                                                                                                                                                                                THE GASTROINTESTINAL
```

FILING DATE: 31-MAR-1997 ATTORNEY/AGENT INFORMATION:

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                   맑
                                                                                                                                                                  Ś
                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
US-09-049-698-18
                           RESULT 2
                                                                밁
                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x US-09-049-698-16 (1-3043)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-09-049-698-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  INFORMATION FOR SEQ ID NO: 16
SEQUENCE CHARACTERISTICS:
LENGTH: 3043 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . No.:
                                                              1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REGISTRATION NUMBER: 35,441
REFERENCE/DOCKET NUMBER: 60
TELECOMMUNICATION INFORMATION:
                                                                                                                                   1388
                                                                                                                                                                                                         1328
                                                                                                                                                                                                                                                                              1277
                                                                                                                                                                                                                                                                                                                                                1217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1049
                                                                                                                                                                                                                                                                                                                                                                                                                    1157 GGAACTTCCATCTGCTCTGGAATTTÄÄÄTATGCATTTCAGGTGATTGGAGAGCTACATTCC 1216
                                                                                                                                                                                                                                                                                                                                                                                   116
                                                                                               173
                                                                                                                                                                                                                                                                                                               133
                                                                                                                                                                                                                                                                                                                                                                                                                                                      101
                                                                                                                                                                      156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          941 GTTCTTGATAAGTCTGGAAGCATGGGG----------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                77 CysVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: 847/935-17
TELEFAX: 847/938-2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME: Becker, Cheryl REGISTRATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                      ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                              CAACTCGATGGATCCGAAGTACTGCTGCTGACTGACTGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                      Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 102
                                                            GGAAAT 1453
                                                                                               GlySer 174
                                                                                                                                                                                                         GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                           SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1108
                                                                                                                                   TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                                                                    -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                          TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 847/935-1729
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.0308
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ACTGTTGAAAATGGATCCTGGGTGGGG 1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    6068.US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .
P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ----AlaGlu 80
                                                                                                                                                                                                                                          155
                                                                                                                                                                                                                                                                                                                                                1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         56
```

```
8
                                                         밁
                                                                                       Ś
                                                                                                                          밁
                                                                                                                                                    á
                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-09-049-698-18 (1-3181)
                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                 US-09-049-698-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 18, Application US/09049698 Patent No. 6368792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
APPLICANT: BILLIN
                                                                                                                                                                                                                                                                                                                                                                                                                                             INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION:
TELEPHONE: 847/935-1729
TELEFAX: 847/938-2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/8
FILING DATE: 31-MAR-1997
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FAST-SEQ for Windows Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/049,698
FILLING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
ADDRESSEE: Abbott Laboratories
STREET: 100 Abbott Park Road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                          952 GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME: Becker, Cheryl L.
REGISTRATION NUMBER: 35,441
REFERENCE/DOCKET NUMBER: 60
                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                         17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STREET:
                                                                                                                                                                                                                                                                                                                                                                                                              LENGTH:
                        GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                     GluLeuAla[/ysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                    LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60064-3500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Abbott Park
                                                                                                                                                                                                                                                                                                                                                                                           nucleic acid
                                                         -GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ROBERTS-RAPP, LISA
RUSSELL, JOHN C.
STROUPE, STEPHEN D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         COLPITTS, FRIEDMAN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HAYDEN, MARK
KLASS, MICHAEL R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COHEN, MAURICE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     BILLING-MEDEL,
                                                                                                                                                                                                                                0.0331
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       , TRACEY L.
, PAULA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           REAGENTS AND METHODS USEFUL FOR DETECTING TRACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          08/828,856
                                                                                                                                                                                                                                                                                                                                                                                                                                               18:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PATRICIA A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            6068.US.P1
                                                                                                                                                                                                                      Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                   Length:
Matches:
                                                                                                                                                                                                                                                                   Conservative:
-ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FOR THE
                                                                                                                                                                                                                      3181
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THE GASTROINTESTINAL
                                                                                                                             978
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      RESULT 3
US-09-206-942-36
   밁
                                     S
                                                                       문
                                                                                                             S
                                                                                                                                                   US-10-034-500-2 (1-218) x US-09-206-942-36 (1-3668)
                                                                                                                                                                                                                                                                                     Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                           ; TYPE: DNA
; ORGANISM: Haemophilus influenzae
US-09-206-942-36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ર્
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ð
                                                                                                                                                                                                                                                                                                                                                                                                                         SOPTWARE: PatentIn Ver. SEQ ID NO 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 36, Application US/09206942 Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High TITLE OF INVENTION: Molecular Weight Proteins FILE REFERENCE: 1038-86, MIS; b
CURRENT APPLICATION NUMBER: US/09/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER FILING DATE: 1998-10-07
NUMBER: 09 SEQ ID NOS: 95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: LOOSMOTE, Sheena M. APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 3668
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1228
1044 TCGACACACGCCGCTTTTACAATAAAAATGATTTAATTTTAAATGCCACTGGGGGCAAT 110:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101
                                                                             984
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                 31 ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeu-------
                                                                                                           11 ValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAla 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
                                                                       ATAGAGTCACAAAACTTTAGTGCCTCAGGAGGGTCAAGCTTAAAATTCAAAAGCGAAGGT 1043
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CHACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gln------AlaAlaValIleLeuLeuThrAspGlyMisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 1.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1.119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Сувуа1---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                           0.246
86.00
31.85%
17.78%
7.69%
                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               80
                                     44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        155
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 g
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
   Pred. No.:
                 Alignment Scores:
                                                         US-09-206-942-33
                                                                                                                                                                                                                                                                                                                                                                                                                                           US-09-206-942-33
                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 4
                                                                                                                                                                                                                                                                                                                                                                             Sequence 33, Application Patent No. 6432669 GENERAL INFORMATION:
                                                                                                                                  SEQ ID NO 33
                                                                                                                                                                  APPLICANT: LOOSMOTE, Sheena M.
APPLICANT: Yang, Yan-Ping
APPLICANT: Klein, Michel H.
TITLB OF INVENTION: Protective Recombinant Haemophilus Influenzae High
TITLE OF INVENTION: Molecular Weight Proteins
FILE REFERENCE: 1038-861 MIS:jb
CURRENT APPLICATION NUMBER: US/09/206,942
CURRENT FILING DATE: 1998-12-08
EARLIER APPLICATION NUMBER: 09/167,568
EARLIER FILING DATE: 1998-10-07
NUMBER OF SEQ ID NOS: 95
                                                                                          LENGTH: 36
TYPE: DNA
                                                                                                                                                        SOFTWARE:
                                                                           ORGANISM: Haemophilus influenzae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1701
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1641
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GAGCGGATAACAATCAAAGCAGGCGTTAAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluGluValValValLeuArgGlyValAsn 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AACAGAAAAGGTGATTTAAATATCACGAATAATGGTGATAATACTGAAATCCAAATTGGC 1640
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ValLeuVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GCTAATCCAAATTACAGCTTTAACGTATCCGGCCTATTTGACAACCAAGGCAAGTCAAAC 1466
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrAsnProAsnValCysPheHisValValSerPheAlaAspAsp---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATCAAAGGTAATATTACTGTTAAAGAAGGAGCC---AATGTCACCCTTCGTAGCGCGAAT 1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AAAAACATAACCTTTGAAGGGGGCAATATCACCCTTGCAGCCGATAAAAAACCAATAGAA 1223
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGCAATATCTCGCAAAAAGAAGGCAATCTCACAATTTCTTCTGATAAAGTCAATATTACC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CTGAATATTACCACTAAATCCGACTCCAACCACCATACTATTATAAAGGGTAATATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTCCATCGCTAAGGGAGGAGCTATTTTTAAAGATATCGAG-----AATACTGGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACCGGCTCCGCTATCAATATAGAAAAAAATCTTACCGTTGAAGGTAGTGCTAAGTTTTTA 1406
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGGTAATGACAAATCAGCTTTAAGTATAAGAGGAAATGTCACTAATAAAGGCAAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---ProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla-----
                                                                                                                  3686
                                                                                                                                                    Patent In
                                                                                                                                                    Ver.
 0.248
                                                                                                                                                                                                                                                                                                                                                                                                                       US/09206942
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AspGlyLeuGlnLeuLeuGlnAsn 185
Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----LysIleAsnAlaAlaMet
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1730
3686
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -CTCACCGTT 1346
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       177
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1520
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1337
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           157
```

```
δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                 RESULT 5
US-09-221-017B-874
                                                                                                                                                                                                      ঠ
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                             멍
                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-034-500-2 (1-218) x US-09-206-942-33 (1-3686)
                                                                                                                                                                        밁
                                                                               Sequence 874, Application US/09221017B Patent No. 6444799
         GENERAL INFORMATION:
APPLICANT: ROSS, Bruce C.
TITLE OF INVENTION: P. GINGIVALIS NUCLEOTIDES AND USES THEREOF NUMBER OF SEQUENCES: 1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1299
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1242
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1002
                                                                                                                                                                                                                                           1659
                                                                                                                                                                                                                                                                                                                                                                                1539
                                                                                                                                                                                                                                                                                                                                                                                                                                                     1485
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1425
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1182 AAAAACATAACCTTTGAAGGGGGCAATATCACCCTTGCAGCCGATAAAAAAACCAATAGAA 1241
CORRESPONDENCE ADDRESS:
                                                                                                                                                                        1719
                                                                                                                                                                                                                                                                                                               1599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1062 TCGACACGCCGCTTTTACAATAAAAAATGATTTAATTTTAAATGCCACTGGGGGCAAT 112:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       143 ThrAsnProAsnValCysPheHisValValSerPheAlaAspAsp------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  103
                                                                                                                                                                                                        206
                                                                                                                                                                                                                                                                             186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     83
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  31 ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeu--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   11 ValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAla 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATATCATTGAACCAAGTTGCAGGTATTGATAGTAATCTCAAAAAAAGCCTTATAGCCAAT 1181
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAGAGTCACAAAACTTTAGTGCCTCAGGAGGGTCAAGCTTAAAATTCAAAAGCGAAGGT 1061
                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATTTCCATCGCTAAGGGAGCTATTTTTAAAGATATCGAG-----AATACTGGCAGT 1538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GCTAATCCAAATTACAGCTTTAACGTATCCGGCCTATTTGACAACCAAGGCAAGTCAAAC 1484
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TATGGTAATGACAAATCAGCTTTAAGTATAAGAGGAAATGTCACTAATAAAGGCAAT--- 1355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATCAAAGGTAATATTACTGTTAAAGAAGGAGCC---AATGTCACCCTTCGTAGCGCGAAT 1298
                                                                                                                                                                      GAGCGGATAACAATCAAAGCAGGCGTTAAT 1748
                                                                                                                                                                                                      GluGluValValValLeuArgGlyValAsn 215
                                                                                                                                                                                                                                                                                                               AACAGAAAAGGTGATTTAAATATCACGAATAATGGTGATAATACTGAAATCCAAATTGGC 1658
                                                                                                                                                                                                                                                                                                                                                                                CTGAATATTACCACTAAATCCGACTCCAACCACCATACTATTATAAAGGGTAATATAACT
                                                                                                                                                                                                                                                                                                                                                                                                                     ValLeuVal------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ------AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla----------
                                                                                                                                                                                                                                           GGCAATATCTCGCAAAAAGAAGGCAATCTCACAATTTCTTCTGATAAAGTCAATATTACC
                                                                                                                                                                                                                                                                           ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ÀCCGGCTCCGCTATCÀÀTATAGAAAAAAÀATCTTACCGTTGAAGGTAGTGCTAAGTTTTTA 1424
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---ProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        86.00
31.85%
17.78%
7.69%
                                                                                                                                                                                                                                                                                                                                          Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----LysileAsnAlaAlaMet 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----CTCACCGTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              38
98
7
                                                                                                                                                                                                                                                                                                                                                                                1598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1364
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    44
                                                                                                                                                                                                                                           1718
                                                                                                                                                                                                                                                                                                                                                185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            157
                                                                                                                                                                                                                                                                                                                                                                                                                     177
                                               S
                                                                                 맑
                                                                                                                 Ś
                                                                                                                                                      밁
                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                 Score:
                뭕
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                     Alignment Scores: Pred. No.:
                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-09-221-017B-874 (1-2556)
                                                                                                                                                                                                                                                                                                                                                                        US-09-221-017B-874
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: PCT/AU98/01023 FILING DATE: 10-DEC-1998 ATTORNEY/AGENT INFORMATION: NAME: MONTOY, Gladys H REGISTRATION NUMBER: 32,430 REFERENCE/DOCKET NUMBER: 27340-20021 TELECOMMUNICATION INFORMATION: TELEPHONE: 650-813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEX: 706141
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                       ORIGINAL SOURCE:
ORGANISM: POF
FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: IFILING DATE: 09-APR-1PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SOFTWARE: FastSEQ for V
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ZIP: 94304-1018
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 30-JAN-: PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ANTI-SENSE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
858
                                                                804 GCAGCCAAAGATGTAGCGATTTCCTTTATCAACAATCGTCCGAACGACAATATC-----
                                                                                                                                   750 ATGGATGTGTĆAGGĆAGT-----ATGCAGGCCATGGACTTCAAGCCGAATCGCTTGGAG 803
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER: IBM CON
OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET: 755 PAGI
CITY: Palo Alto
STATE: CA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: FILING DATE: 31-DE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: US/0 FILING DATE: 23-DEC-1998
                                 58
                                                                                                                                                                                                                                                                                                                                                                                                    NAME/KEY: misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: MORRISON & FOERSTER
STREET: 755 PAGE MILL ROAD
                                                                                            38 LeuAlaIysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGly 57
                                                                                                                                                               18 ValaspTyrSerGlySerMetMetMetLysHisValalaValargGluProLysIleGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                          LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 2556 base pairs
                      GlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSerCys 77
 GGGATGGTTACATTCGCCGGAGAGAGC--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       nucleic acid
EDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             650-494-0792
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            UNKNOWN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FastSEQ for Windows Version 2.0b
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IBM Compatible
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         circular
                                                                                                                                                                                                                                                                                                                                                                                                                                           PORYPHYROMONAS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ŏ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                09-APR-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  30-JAN-1998
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   31-DEC-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DNA (genomic)
                                                                                                                                                                                                                                                   83.50
44.88%
28.35%
7.46%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Windows
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PP2911
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PP1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US/09/221,017B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PP1182
                                                                                                                                                                                                                                                                                                                                                                                                                                           GINGIVALIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27340-20021.00
                                                                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                     2556
36
21
37
33
                                                                  857
                                                                                                                                                                      37
   884
```

```
US-09-221-017B-960/c; Sequence 960, Application US/09221017B; Patent No. 6444799; GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                          TELEFAX: 650-494-0792
TELEX: 706141
INFORMATION FOR SEQ ID NO:
                                                                             TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: circular
MOLECULE TYPE: DNA (genc
                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: PP1182
FILING DATE: 31-DEC-1997
PRIOR APPLICATION DATA:
APPLICATION UMBER: PP1546
PILING DATE: 30-JAN-1998
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: US
FILING DATE: 23-DEC-19
CLASSIFICATION:
PRIOR APPLICATION DATA:
                                  ANTI-SENSE: UNKN
ORIGINAL SOURCE:
ORGANISM: PORY
                                                                                                                                                                                                                                                              NAME: MONTOY, Gladys H
REGISTRATION NUMBER: 32,430
REFERENCE/DOCKET NUMBER: 27
TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-813-5600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: ROBS, Bruce C.
TITLE OF INVENTION: P. GI
NUMBER OF SEQUENCES: 1120
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                   FILING DATE: 10-DEC-1998
ATTORNEY/AGENT INFORMATION:
NAME: Monroy, Gladys H
                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: PP2911
FILING DATE: 09-APR-1998
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/AU
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OPERATING SYSTEM: Windows
SOFTWARE: FastSEQ for Windows Version 2.0b
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ZIP: 94304-1018
COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1053
                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET: 755 PAGE
CITY: Palo Alto
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         91 GluIlePheGlyArgLeu------ThrProValGlyAspGlyIleLysMetHisGlu 107
   NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OPERATING SYSTEM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COMPUTER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: MORRISON & FOERSTER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAGATG---GGTGTTCTGGATGATGGTACAGCTATCGGAATGGGATTG------GCT 992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ACGGCCGTCAATCGACTGAAGGACAGCAAAGCCCAAGAGCCGCGTGGTTATTCTGCTGACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITACTCAATGTCCATTGACTACCGACCATACCGTATTGCTTAATATGGTACAGGACTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GACGGATCAAACAACATGGGC 1073
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AspGlyHisAsnAsnLeuGly 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ThrValIleAsnGlnMetProProGlnAlaAla-----ValIleLeuLeuThr 1.23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValAlaGluCysAlaValAsnThr--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                         3250 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            755 PAGE MILL ROAD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                      UNKCNOWN
misc_feature
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   IBM Compatible
                                     PORYPHYROMONAS GINGIVALIS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                23-DEC-1998
                                                                                                     DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               P. GINGIVALIS NUCLEOTIDES AND USES THEREOF 1120
                                                                                                                                                                                                                                                                                                                                                                                      PCT/AU98/01023
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PP1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/09/221,017B
                                                                                                                                                                                                               960:
                                                                                                                                                                                                                                                                                                  27340-20021.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ----IleLysSerAspLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1.052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   944
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  90
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; LOCATION: US-09-221-017B-960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-968-563-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x US-09-221-017B-960 (1-3250)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 5, Application US/08968563 Patent No. 6013494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GENERAL INFORMATION:
APPLICANT: CHARLE:
APPLICANT: ANTHON
                                                                                                                                                  TITLE OF INVENTION: METHOD FOR TITLE OF INVENTION: PRODUCTION NUMBER OF SEQUENCES: 49 CORRESPONDENCE ADDRESS: ADDRESS: 1. DU PONT DE STREET: 1007 MARKET STREET CITY: WILMINGTON
                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1123 AAAGCGGTCAAGTCCATTCTCTCCGAGGATTCGTCCTTAGCTGTCGAAGATATTATC 1067
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1459 AAAGAAGAGCGTACGCTCTTCGGCCAACTCACATCTGTCAGCGGTGTCGGGCCTACGACG 1400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1399 GCACAGCTCATCCTATCCTATGCTCCTCAAGAGCTGGCCGCACTCATTACCACAGGG 1340
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1279
                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                191 GluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGluValVal 209
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  126 His------AsnAsnLeuGlyMetAsnProValGluGluVal--- 137
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              106 HisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAspGly 125
                   AUDRESSEE: GENENCOR INTERNATIONAL, STREET: 4 CAMBRIDGE PLACE STREET: 1870 SOUTH WINTON ROAD CITY: ROCHESTEP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            87 LysSerAspLeuGluIlePheGlyArgLeuThrProVal----GlyAspGlyIleLysMet 105
                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlySerValLeuValAspGlyLeuGlnLeuLeu-----GlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCT---GCACGGACGGCTGTAGGAGATGCTGCTCTGAATACCATAGCT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGGATCTGAAAGGTAAGATACAACTGGAAACCTCCTCAGAC-----GAGATCTTG 1229
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CAGGCCGATGCGCTGAAAGCCGTGAAGGGCATCGGTCTGAAGACCGCTCAGCGTATCATC 1280
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ĠĠĀĠĀĀĢĀĀĢCCATCĀĢTGCTĊTĀĀĀĢĀTĢCTTĞGCCTTTGCCGĀTĊĊĠĠĊTĀTĀ---CGC 1124
                                                                                             19898
                                                                                                                                DELAWARE
NEW YORK
                                                                                                                                                                                                                                                                                                                                                                                                                                  CHARLES E. NAKAMURA
ANTHONY A. GATENBY
AMY (KUANG-HUA) HSU
RICHARD D. LA REAU
                                                                                                                                                                                                                                                                                   STEPHEN K. PICATAGGIO RAMESCH V. NAIR
                                                                                                               U.S.A.
                                                                                                                                                                                                                                                                                                                                                           DONALD E. TRIMBUR GREGORY M. WHITED
                                                                                                                                                                                                                                                                                                                      MARK S. PAYNE
                                                                                                                                                                                                                                                                                                                                          VASANTHA NAGARAJAN
                                                                                                                                                                                                                                                                                                                                                                                                SHARON L. HAYNIE
MARIA DIAZ-TORRES
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1...3250
                                                                                                                                                                                       I. DU PONT DE NEMOURS AND COMPANY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1.01
81.00
46.04%
23.02%
7.24%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -LysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                          METHOD FOR THE RECOMBINANT PRODUCTION OF 1,3-PROPANEDIOL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3250
32
32
51
51
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1181
```

COUNTRY: U.S.A.

```
Ş
                                                                                                                                                                                                                                                                                                                                           망
                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                              Ş
                                                                   뭉
                                                                                                 á
                                                                                                                                  밁
                                                                                                                                                                Ś
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-08-968-563-5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 302-773-0164
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 1380 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/030,601
FILING DATE: NOVEMBER 13, 1996
ATTORNEY/AGENT INFORMATION:
NAME: FLOYD, LINDA AXAMETHY
REGISTRATION NUMBER: 33,692
REFERENCE/DOCKET NUMBER: CR-9982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: DN
ORIGINAL SOURCE:
ORGANISM: GPD1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: 3.50 INCH DISKETTE
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: MICROSOFT WORD FOR WINDOWS
SOFTWARE: MICROSOFT WORD VERSION 7.0A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELECOMMUNICATION INFORMATION: TELEPHONE: 302-892-8112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: MICROSOFT WC CURRENT APPLICATION DATA:
                                                                                                                                                                    116
                                                                                                                                      397
                                                                                                                                                                                                                                         102
                                                                                                                                                                                                                                                                                                                                             217
                                                                                                                                                                                                                                                                                                                                                                                                             157 AGAAAGAGAAGTTCCTTCTGTTTCTTTGAAGGCTGCCGAAAAGCCTTTCAAGGTTACT 216
496
                                                                                           277
                                                                                                                                                                                                                                                                                                            88
                                                                                                                                                                                                                                                                                                                                                                             68
                                                                                                                                                                                                                                                                                                                                                                                                                                              64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44 LeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATAAAGATGTCTGCTGCTGATAGATTAAACTTAACTTCCGGCCACTTGAATGCTGGT 156
                              AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp 165
                                                                                                                                                                    GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro---- 133
                                                                                                                                                                                                                                                                                                                                                                           IleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLys
CGTATCTGTAGCCAATTGAAAGGTCATGTTGAT
                                                                                                                                                                                                                                       GlyIleLysMetHisGluThrVal------
                                                                                                                                                                                                                                                                          GGATACCCAGAAGTTTTCGCTCCAATAGTACAAATGTGGGTGTTCGAAGAAGAGATCAAT 336
                                                                                                                                                                                                                                                                                                        SerAspLeuGluIlePheGlyArgLeuThrProValGly-
                                                                                                                                                                                                                                                                                                                                           GTGATTGGATCTGGTAACTGGGGTACTACTATTGCCAAGGTGGTTGCCGAAAATTGTAAG 276
                                                                 ATTGATTCAGTCAAGGATGTCGACATCATCGTTTTCAACATTCCACATCAATTTTTGCCC
                                                                                                                                    -----ATCACTCTACCCGAC-----AATTTGGTTGCTAATCCAGACTTG 435
                                                                                                                                                                                                     GGTGAAAAATTGACTGAAATCATAAATACTAGACATCAAAACGTGAAATACTTGCCTGGC 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.294
80.50
35.65%
20.37%
7.19%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               x US-08-968-563-5 (1-1380)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/968,563
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          <u>ب</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CR-9982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
                                                                                                                                                                                                                                       -----IleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                            ------ProTyrSerVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1380
44
33
68
71
-TCACACGTCAGA 540
                                                                                                                                                                                                                                                                                                      -----Asp 101
                                                                                                                                                                                                                                                                                                                                                                             87
                                                                                                                                                                                                                                                                                                                                                                                                                                              67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              63
                                                                   495
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-969-683A-5
Ś
                                                                                    Percent Similarity:
Best Local Similarity:
Query Match:
                                 US-10-034-500-2 (1-218) x US-08-969-683A-5 (1-1380)
                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                 US-08-969-683A-5
                                                                                                                                                             Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 5, Applic
Patent No. 6136576
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
CLASSIFICATION: 435
RAIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/US97/208
FILING DATE: 13-NOV-1997
APPLICATION NUMBER: 60/030,601
FILING DATE: 13-NOV-1996
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 1380 base pair
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: GENENCOR INTERNATIONAL,
TITLE OF INVENTION: METHOD FOR THE
TITLE OF INVENTION: PRODUCTION OF
                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION:
TELEPHONE: 650-864-7620
TELEFAX: 650-845-6504
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           COMPUTER: IBM Compatible
OPERATING SYSTEM: Windows
SOFTWARE: FASTSEQ for Windows Version 2.0b
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/969,683A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM: MEDIUM TYPE: Diskett
                                                                                                                                                                                                                                                  MOLECULE TYPE:
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 6
CORRESPONDENCE ADDRESS:
                                                                                                                                                             No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               186 ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   166 GlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn 185
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ADDRESSEE: Genencor International, Inc
STREET: 4 Cambridge Place
STREET: 1870 South Winton road
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME: Glaister, Debra
REGISTRATION NUMBER: 33
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: U
ZIP: 14618
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STATE:
                                                                                                                                                                                                                                                                                     STRANDEDNESS:
TOPOLOGY: li
44 LeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla 63
                                                                                                                                                                                                                                     ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluGluValValVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GCTATCTCCTGTCTAAAGGGTTTTTGAAGTTTGGTGCTAAAGGTGTCCAATTGCTATCCTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GAGGAACTAGGTATTCAATGTGGTGCTCTATCTGGTGCTAACATTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Rochester
                                                                                                                                                                                                                                                                                                                      1: 1380 base pairs nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/08969683A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NY
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      U.S.A
                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Diskette
                                                                                                                                                                                                                                                                    DNA (genomic)
                                                                                                                                                                                                                                                                                                     single
                                                                                        0.294
80.50
35.65%
20.37%
7.19%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              METHOD FOR THE RECOMBINANT PRODUCTION OF 1,3 PROPANEDIOL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PCT/US97/20873
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                33,888
                                                                                                                                                                                                                                                                                                                                                                             <u>ن</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   369-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -LeuargGlyValasnPheAla
                                                                                                                         Length:
Matches:
Conservative:
                                                                                        Mismatches: Indels:
                                                                       Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----TACATCACT
                                                                         44
33
68
71
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        600
```

```
RESULT 9
US-09-297-928-1
                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                      Sequence 1, Application US/09297928
Patent No. 6358716
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                        610
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             146
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  337
                                                                                                                                                                                                                                                                                                                                                                                                                                                  206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     496
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       277
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 ValGluGluValLysSerIle------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    97
        ZIP: 14618
COMPUTER READABLE FORM:
MEDIUM TYPE: DISKETTE, 3.5 INCH
COMPUTER: IBM PC COMPATIBLE
OPERATING SYSTEM: MICROSOFT WINDOWS 9:
SOFTWARE: MICROSOFT WORD VERSION 7.0A
CURRENT APPLICATION NUMBER: US/09/297,928
                                                                                                                                                            CORRESPONDENCE ADDRESS:
ADDRESSEE: GENENCOR INTERNATIONAL,
STREET: 4 CAMBRIDGE PLACE
1870 SOUTH WINTON ROAD
                                                                                                                                                                                                                                                                                             APPLICANT: BULTHUIS, BEN A.
GATENBY, ANTHONY A.
HAYNIE, SHARON L.
                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                          TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                      GAGGAACTAGGTATTCAATGTGGTGCTCTATCTGGTGCTAACATTGCC
                                                                                                                                                                                                                                                                                                                                                                                                                                               GluGluValValVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr 205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GCTATCTCCTGTCTAAAGGGTTTTGAAGTTGGTGCTAAAGGTGTCCAATTGCTATCCTCT 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlnIleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGTATCTGTAGCCAATTGAAAGGTCATGTTGAT-----TCACACGTCAGA 540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp 165
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATTGATTCAGTCAAGGATGTCGACATCATCGTTTTCAACATTCCACATCAATTTTTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTGAAAAATTGACTGAAATCATAAATACTAGACATCAAAACGTGAAATACTTGCCTGGC 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GGATACCCAGAAGTTTTCGCTCCAATAGTACAAATGTGGGTGTTCGAAGAAGAAGATCAAT 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerAspLeuGluIlePheGlyArgLeuThrProValGly------Asp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTGATTGGATCTGGTAACTGGGGTACTACTATTGCCAAGGTGGTTGCCGAAAATTGTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    IleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLys 87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AGAAAGAGAAGTTCCTCTTCTGTTTCTTTGAAGGCTGCCGAAAAAGCCTTTCAAGGTTACT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CITY: ROCHESTER
STATE: NEW YORK
COUNTRY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ATCACTCTACCCGAC-----AATTTGGTTGCTAATCCAGACTTG 435
                                                                                                                                                                                                                                                       LAREAU, RICHARD D. INVENTION: METHOD FOR THE PRODUCTION
                                                                                                                                                                                                                                                                                     HSU, AMY K.
  11-May-1999
                                                                                                                                                                                                                              ORGANISMS
                                                                                                                                                                                                                                            GLYCEROL BY RECOMBINANT
                                                                                                                                                                                                                                                                                                                                                                                                                                             -LeuArgGlyValAsnPheAla 217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----TyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----ProTyrSerVal---
                                                     95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----TACATCACT
                                                                                                                                                                                                                                                         õ
                                                                                                                                                                                                                                                                                                                                                                                                                       657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            609
                                                 S
                                                                                                      Ś
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Pred.
á
                          밁
                                                                             문
                                                                                                                                밁
                                                                                                                                                        5
                                                                                                                                                                                    몽
                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No.:
                                                                                                                                                                                                                                                                                                                                                     277
                                                                                                                                                                                                                                                                                                                                                                                                                                                             157
                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97
```

```
SEQUENCE DESCRIPTION: SEQ ID US-09-297-928-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-034-500-2 (1-218) x US-09-297-928-1 (1-1380)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TELEX: 6717325
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                              166 GlnīleValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn
206 GluGluValValVal------LeuArgGlyValAsnPheAla 217
                                                                                             186 ProAlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThr
                                                                                                                                                                                                                                                                                                                                                                                     134 ValGluGluValLysSerIle-----------TyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              44 LeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla 63
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR APPLICATION DATA:
APPLICATION NUMBER: 60/03602
FILING DATE: NOVEMBER 13, 19;
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: linear MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: 302-892-8112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              IleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLys 87
                                                                                                                                             GCTATCTCCTGTCTAAAGGGTTTTGAAGTTGGTGCTAAAGGTGTCCAATTGCTATCCTCT
                                                                                                                                                                                                                                          CGTATCTGTAGCCAATTGAAAGGTCATGTTGAT------TCACACGTCAGA
                                                                                                                                                                                                                                                                                     AsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAsp
                                                                                                                                                                                                                                                                                                                                        ATTGATTCAGTCAAGGATGTCGACATCATCGTTTTCAACATTCCACATCAATTTTTGCCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsnPro-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGTGAAAAATTGACTGAAATCATAAATACTAGACATCAAAACGTGAAATACTTGCCTGGC 396
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyIleLysMetHisGluThrVal-------IleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGATACCCAGAAGTTTTCGCTCCAATAGTACAAATGTGGGTGTTCGAAGAAGAGATCAAT 336
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGATTGGATCTGGTAACTGGGGTACTACTATTGCCCAAGGTGGTTGCCGAAAATTGTAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATAAAGATGTCTGCTGCTGATAGATTAAACTTAACTTCCGGCCACTTGAATGCTGGT 156
                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ATCACTCTACCCGAC-----AATTTGGTTGCTAATCCAGACTTG 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SerAspLeuGluIlePheGlyArgLeuThrProValGly------Asp 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----ProTyrSerVal---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 1380 base pairs TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME: FLOYD, LINDA AXAMETHY REGISTRATION NUMBER: 33,692 REFERENCE/DOCKET NUMBER: CR-9981-P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEFAX: 302-773-0164
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.294
80.50
35.65%
20.37%
7.19%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1380
44
33
68
71
                                                                                               205
                                                                                                                                             600
                                                                                                                                                                                          185
                                                                                                                                                                                                                                          540
                                                                                                                                                                                                                                                                                          165
                                                                                                                                                                                                                                                                                                                                          495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   67
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
```

```
밁
                                                                                                                                                                  5
                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; SEQ ID NO 44
; LENGTH: 3288
; TYPE: DNA
; ORGANISM: Haemophilus influenzae
US-09-206-942-44
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-09-206-942-44
-5
                                           밁
                                                                             δ
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x US-09-206-942-44 (1-3288)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 44, Application US/09206942 Patent No. 6432669
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TITLE OF INVENTION: Protective Recombinant Haemophilus Influenzae High TITLE OF INVENTION: Molecular Weight Proteins FILE REFERENCE: 1038-861 MIS:jb CURRENT APPLICATION NUMBER: US/09/206,942 CURRENT FILING DATE: 1998-12-08 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER APPLICATION NUMBER: 09/167,568 EARLIER FILING DATE: 1998-10-07 NUMBER: 1998-10-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: Loosmore, Sheena M. APPLICANT: Yang, Yan-Ping APPLICANT: Klein, Michel H.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               SOFTWARE: PatentIn Ver. 2.1
                                                                                                                             1405
                                           1465 ATTTCCATTGCCAAAGGAGGGGCTCACTTTAAAGACATTAATAACACTAAGAGTTTAAAC 1524
                                                                                                                                                                                                                                                                                                                                                                               1279 TATGGTAATGACAAATCAGCTTTAAGTATAAGAGGAAATGTCACTAATAAAGGCAAT--- 1335
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1162 AAAAACATAACCTTTGAAGGGGGCAATATCACCCTTGCAGCCGATAAAAAAACCAATAGAA 1221
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1123 GGTATTGATGGTAATCTCCAA--------AAAAGCCCTTGTAGCCAAT 1161
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1063 ATAGAAAGTGATTTAAACTTTAAATGCCACTGGGGGCAATATATCATTGAACCAAGTTGCA 1122
                                                                                                                                                                                                               1345
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               010
                                                                                    158
                                                                                                                                                                  143 ThrAsnProAsnValCysPheHisValValSerPheAlaAspAsp------ 157
                                                                                                                                                                                                                                                  123 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                      103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
  168 ValAlaLeuAsnSerGlySer-----ValLeuValAspGly------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         64
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       31 ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMet 50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           11 ValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetLysHisValAla 30
                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATCAAAGGTAATATTACTGTTAAAGAAGGAGCC---AATGTCACCCTTCGTAGCGCGAAT 1278
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ---ProTyrSerValileIleProGlnGlySerTrpAsnSerCysValAlaGluCysAla 82
                                                                                                                             GCTAATCCAAATTACAGCTTTAACGTATCCGGCCTATTTGACAACCAAGGCAAGTCAAAC 1464
                                                                                                                                                                                                                                                                                                                                                                                                                    ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly 102
                                                                                  -----AlaGluGlyLysAlaIleIleAspGlnIle-----
                                                                                                                                                                                                             ACCGGCTCCGCTATCAATATAGAAAAAATCTTACCGTTGAAGGTAGTGCTAAGTTTTTA 1404
                                                                                                                                                                                                                                                                                               1.67
79.50
35.89%
19.35%
7.10%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3288
48
41
90
69
                                                                                      167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           63
```

F & E	3 8 8 8 8	us- Qy Qy Db	Align pred. Score Perce Best Query DB:	Qy Db RES US-	B 8	D Q	Дb
	51 1180 64 1240 1240 83	.10-034- 11 1081 31 1141	Ma Loc Men Men	1 ULT 09 EQUAPPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE APPE AP	188 1645	180 1585	1525
IleLysM	ProLysm : AAAAACAProTTaTGGTA	ValGlus :::     ATAGAAA ValArgG ValArgG	similarity: similarity tch:	TAA TAA 142- 442- 642- 7 IN TI: TI: TI: TI: TI: TI: TI: TI: TI: TI:	ValCysG ::: ATCTCGC	AACGGGG	::: ATTACTA
sMetHisGl	etSerTy :::::: TAACCTT TAACCTT YrSerVa :::: GTAATAT hrileLy hrileLy	500-2 (1-218) x US-09 ValGluSerTyrAsnTyrLeu :::      ATAGAAAGTGATTTAACTTTA ATAGAAAGTGUProLysIleGlu ValArgGluProLysIleGlu GGTATTGATGGTAATCTCCAA	••	alValLeuArge	lnGluPhe   ::: ^AAAAGA/	LeuGlr     ATTTAAA1	CAACTCC
GluThrVal:	rGlnGly( ::::    TGAAGGG  TGAAGGG  IlleIle! !: : : : : : : : : : : : : : : : : :	x US-09- nTYrLeuV     AACTTTAA sileGluL :::::: TCTCCAA-	1.69 79.50 35.89% 19.35% 7.10%	rgGlyValAsn ::           AGGGTGTTAAT ion US/0920 ion US/0920 Sheena Mping -ping Chel H. Protective Molecular W	ValAsnS     \GGTAATC	LeuLeuG ::: ATCACTG	 GACTCCG
IleAsnGlnMet	ProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAla	500-2 (1-218) x US-09-206-942-42 (1-3306)  ValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetMetLysHisValAl :::       ATAGAAAGTGATTTAACTTTAAATGCCACTGGGGGCAATATATCATTGAACCAAGTTGC ValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMe :::: GGTATTGATGGTAATCTCCAA			ValCysGlnGluFheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGlu :::    :::	LeuglnLeuLeuglnAsnProAla 	::: httactaccaactccgactccgcttaccgcactattatagaaggcaatataaaccaacagt
nMetPro	TThrPhe	-42 (1-) rSerGly.     TGGGGGC BGluAla	Length: Matches: Conservativ Mismatches: Indels: Gaps:	215 1728 6942 6942 Recombinant Ha eight Proteins 09/206,942 167,568	eCysGln(	AAATAAC	CACTATT
ProGlnA	Ala      CAGCCG GCAGCCG AsnSerC    ANTGTCA ANTGTCA :::  AATGTCA	3306) 'SerMetM' :::::: 'AATATAT' LIleLeuL'A	: ative: hes:	Haemophilus ns	BluGlnII :::::  BATAAAA	CTGAAA1	TAGAAGO
ProProGlnAlaAlaValIleLeuLeu	Ala	2 (1-3306) erGlySerMetMetLysHisValAla       :::::	3306 418 411 90 69	llus Inf	ELEUVAI	CCAAATT	  CAATATA
llleLeuI	ACCAATAC ACCAATAC AGLUCYSJ TAGCGCGJ TAGCGCGAT	3HisVal/      CCAAGTTC      AlaAlaN      GTAGCC/		:luenzae	ELEUVAlThrGluGlu   :::    :::  TAATATCACTAACCAG	GGCGGCA	ACCAACA
122	63 GAA 1239 Ala 82 AAT 1296 GDY 102	Ala 30     3CA 1140 Wet 50		High	lu 207 :: :AG 1704	Ala 187 AAT 1644	GT 1584

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-08-470-179-89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
US-08-470-179-89
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 89, Application US/08470179
Patent No. 5645994
GENERAL INFORMATION:
                                                                                                                                                                                                                           TELEFAX: 801-531-9168
INFORMATION FOR SEQ ID NO:
                                 HYPOTHETICAL: N
ANTI-SENSE: NO
ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
COMPUTER: FC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Huang Ph.D, Wai Mun
TITLE OF INVENTION: Method and Compositions for
TITLE OF INVENTION: Identification of Species in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1483
                                                                     MOLECULE TYPE: other nucleic acid DESCRIPTION: /desc = "gyrA gene HYPOTHETICAL: NO
                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
NAME: Sweigert Ph.D. Susan E.
REGISTRAFION NUMBER: 36,289
REFERENCE/DOCKET NUMBER: 2601
TELECOMMUNICATION INFORMATION:
TELEPHONE: 801-532-1922
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1363
                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                SOFTWARE: Patentin Release #1.0, Version #1.30 CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/470,179 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1663
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1423 GCTAATCCAAATTACAGCTTTAACGTATCCGGCCTATTTGACAACCAAGGCAAGTCAAAC 148
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143 ThrasnProAsnValCysPheHisValValSerPheAlaAspAsp-------
                                                                                                                                             TYPE: nucleic
STRANDEDNESS:
                                                                                                                             TOPOLOGY: not relevant
                                                                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                   ORGANISM:
                                                                                                                                                                                     LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATAACAATCAAGAAGGGTGTTAAT 1746
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ValValValLeuArgGlyValAsn 215
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATCTCGCAAAAAGAAGGTAATCTCACGATTTCTTCCGATAAAATTAATATCACTAACCAG 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGluGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AACGGGGATTTAAATATCACTGATAATAAAAATAACGCTGAAATCCAAATTGGCGGCAAT 1662
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTACTACCAACTCCGACTCCGCTTACCGCACTATTATAGAAGGCAATATAACCAACAGT 160:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValAlaLeuAsnSerGlySer-----ValLeuValAspGly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATTTCCATTGCCAAAGGAGGGGCTCACTTTAAAGACATTAATAACACTAAGAGTTTAAAC 1542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------AlaGluGlyLysAlaIleIleAspGlnIle------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----LeuGlnLeuGlnAgnPro-----Ala 187
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            84110
                                                                                                                                             H: 423 base pairs nucleic acid DEDNESS: double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Salt Lake City
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Utah
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               E: Trask, Britt and Rossa
P.O. Box 2550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
               Salmonella typhimurium
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             207
                                                                                                                                                                                                                             89:
                                                                                         segment"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             in a Sample
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    207
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1.57
```

```
RESULT 13
US-07-872-644-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     跊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-034-500-2 (1-218) x US-08-470-179-89 (1-423)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence 42, Application US/07872644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                      COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PatentIn Release #1.0,

CURRENT APPLICATION DATA;
              FILING DATE: 19920420
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UNBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: Beavo, Joseph A.
APPLICANT: Bentley, Kelley
APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
TITLE OF INVENTION: DNA Encoding Mammalian
TITLE OF INVENTION: Phosphodiesterases
                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         379 AATCTGĊTĠĠTĠAACĠĠT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               174 SerValLeuValAspGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        319 TTCGTGGATAACTATGACGGTACGGAAAAAATTCCGGACGTCATGCCGACCAAAATTCCG 378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            154 PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            134 ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         105 MetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAsp 124
                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
STREET: Two First National Plaza, 20 South Clark
STREET: Street
CITY: Chicago
STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       85 ThrileLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLys 104
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  34 TACGCCATGAACGTATTGGGCAATGACTGGAACAAAGCCTATAAAAAATCTGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        65 TyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsn 84
                                                                                                                                                                                                                                                                                   ZIP: 60603
                                                                                                                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                      COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATCCGTCTGGCGAAAATCGCCCACGAACTGATGGCCGATCTCGAAAAAGAGACGGTGGAT 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGTCAGGGTAACTTCGGTTCTATTGACGGCGACTCCGCGGCGGCAATGCGTTATACGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GlyHisAsnAsnLeuGly----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GTGTATGACACCATCGTTCGTATGGCGCAGCCATTCTCGCTGCGTTACATGCTGGTGGAT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CGTGTCGTTGGTGAC-----GTAATCGGTAAATACCATCCCCACGGCGATTCC---GCA 138
No. 5389527and, Greta B.
                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.0696
79.00
40.48%
19.84%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     58
                                                                                                                                       US/07/872,644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----MetAsnPro 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                                                                                 Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        25
25
26
26
4
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     258
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  87
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     198
```

```
D
                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                   멹
                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-07-872-644-42
                                                                                                                                                                                         US-08-297-494-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x US-07-872-644-42 (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: (312) 984-9740
TELEX: 25-3856
INFORMATION FOR SEQ ID NO: 42
SEQUENCE CHARACTERISTICS:
LENGTH: 3769 base pairs
TYPE: NUCLEIC ACID
                                                                                                                                       Patent No. 5580771 GENERAL INFORMATION:
                                                                                                                                                                          Sequence 42,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 27
TELECOMUNICATION INFORMATION:
TELEPHONE: (312) 346-5750
TELEFAX: (312) 984-9740
         APPLICANT: Beavo, Joseph A.
APPLICANT: Bentley, Kelley
APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
TITLE OF INVENTION: DNA Encoding Mammalian
TITLE OF INVENTION: Phosphodiesterases
NUMBER OF SEQUENCES: 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2052
                                                                                                                                                                                                                                                                                                                        1938 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2169 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ||||||::: ||| |||
2229 CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                            1992 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           143
                                                                                                                                                                                                                                                                                                                                                                                                                                 171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              123 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90 LeuGluIlePheGlyArgLeu--------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    STRANDEDNESS:
TOPOLOGY: lii
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                            AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                 GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                         GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
                                                                                                                                                                          Application US/08297494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              181..3006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2.47
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        42:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3789
37
17
50
46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----CATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -GTAGCCCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2122
                                                                                                                                                                                                                                                                                                                                                                                              1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              2113
                                                                                                                                                                                                                                                                                                                         1879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2053
```

```
밁
                                                                                                       Ş
                                                                                                                                           밁
                                                                                                                                                                            Ş
                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                 뭉
                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-08-297-494-42 (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
; LOCATION:
US-08-297-494-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELEX: 25-3856
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION UNMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 5580771and, Greea E.
REGISTRATION NUMBER: 35,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, V.
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE: CDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 27
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                   2121
1992 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG 1939
                                                                                                                                                                                                                                                                                           2169
                                                                                                                                                                               143
                                                                                                                                                                                                                                                       123
                                                                                                                                                                                                                                                                                                                           103 IleLysMetHisGluThrVallleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell STREET: Two First National Plaza, 20 South Clark STREET: Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               LENGTH: 3789 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEPHONE: (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Chicago
STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                   90 LeuGluIlePheGlyArgLeu------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                            AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                   ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                         AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG--
                                                                                                                                                                                                                                                                                                                                                                   CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                    CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1993
                                                                                                    SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                        ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG 2053
                                                                                                                                                                             ThrAsnProAsnValCys-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2.47
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/08/297,494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               35,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          42:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     27866/30822
                                                                                                                                                                                   .----PheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Version
                                                                                                                                                                                                                                                                                             -----GTAGCCCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3789
37
17
50
46
                                                                                                                                                                                                                       ---CATCAA
                                                                                                                                                                                                                                                                                               2122
                                                                                                                                                                                                                       2113
```

```
ક
                                                                               Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                              US-10-034-500-2 (1-218) x US-08-297-510-42 (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-08-297-510-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 15
                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                               US-08-297-510-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sequence 42,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                          INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1938 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG 1879
                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                      NAME: NO. 5602019and, Greta REGISTRATION NUMBER: 35,302 REFERENCE/DOCKET NUMBER: 27. TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MEDIUM TYPE: Floppy
                                                                                                                                               8
0
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION: DNA Encoding Mamma:
TITLE OF INVENTION: Phosphodiesterases
NUMBER OF SEQUENCES: 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                             FEATURE:
                                                                                                                                                                                                                                                              MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 15-3856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              191 Gluphe---
                                                                                                                                                                                                             NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                           TELEPHONE: (314) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: CLASSIFICATION: 435
90 LeuGluIlePheGlyArgLeu--------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                         STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                               COPOLOGY:
                                                                                                                                                                                                                                                                                                                          ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60603
                                                                                                                                                                                                                                                                                                        nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chicago
Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Application US/08297510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Two First National Plaza, 20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Charbonneau, Harry
Sonnenburg, William K.
VENTION: DNA Encoding Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Bentley, Kelley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Beavo, Joseph A.
                                                                                                                                                                                                               CDS
181..3006
                                                                                                                                                                                                                                                                               linear
                                                                                                                                                                                                                                                               CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Floppy disk
                                                                             2.47
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            --ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US/08/297,510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Greta E.
                                                                                                                                                                                                                                                                                                                                                              42:
                                                                                                                                                                                                                                                                                                                                                                                                                                           27866/30822
                                                                               Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              206
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-479-532-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 42, Application US/08479532 Patent No. 5776752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                      APPLICATION NUMBER: US 07/688
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 5776752and, Greta E
REGISTRATION NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 2786
                                                                                                                                                                                                                                                                                                 COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1878 GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 346-5750
TELEPAX: (312) 984-9740
                                                                                                                                                                                               APPLICATION NUMBER: US/08/479,532
PILING DATE: 07-JUN-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/297,494
PRIOR APPLICATION NUMBER: 08/297,494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2229 CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1938 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1992 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2052 CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2169 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           171 AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               143 ThrasnProAsnValCys-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   191 GluPhe------ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 153 SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    207 GluValValLeuArgGlyValAsnPhe
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET: Two Fi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CITY: Chicago
STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ::
                                                                                                                                                                                                                                                                                                                                                                                                                           60603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Two First
                                                                                                                                                                                                                                                                                                                                                                                                                                                USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Charbonneau, Harry
Sonnenburg, William K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Bentley, Kelley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Beavo, Joseph A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Marshall, O'Toole, Gerstein, Murray & Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                National Plaza,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Phosphodiesterases
58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DNA Encoding Mammalian
                                                                                                                                                             US 07/688,356
                                                                                                  Greta E.
                                                          27866/30822
                                                                                                                                                                                                                                                                                                                             Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----PheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GTAGCCCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----CATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1879
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      206
```

INFORMATION FOR SEQ ID NO:

42:

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                        RESULT 17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x US-08-479-532-42 (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-08-479-532-42
                                                                                                                                                                                                                                                                                      US-08-455-526-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores:
                                                                                                                                                      Sequence 42, Application US/0845526
Patent No. 5789553
GENERAL INFORMATION:
APPLICANT: Beavo, Joseph A.
APPLICANT: Bentley, Kelley
APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SEQUENCE CHARACTERISTICS:
LENGTH: 3789 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE: FEATURE:
                                                                                                     TITLE OF INVENTION: DNA Encoding Mammalian TITLE OF INVENTION: Phosphodiesterases NUMBER OF SEQUENCES: 58
                                                                                                                                                                                                                                                                                                                                       1878 GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2169 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG-----GTAGCCCCTTCTT 2122
                                                                                  NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              143
                                                                                                                                                                                                                                                                                                                                                                                                                                              191 GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 171 AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          NAME/KEY:
LOCATION:
                STREET:
CITY:
                                                 ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                             AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG 1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuGluIlePheGlyArgLeu--------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrAsnProAsnValCys-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
Chicago
                                 Two First National Plaza,
                Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----PheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative:
                                 20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3789
37
17
50
46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----CATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           2053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2113
                                                                                                                                                                                                                                                                                                                                                                                                                                              206
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                    Ş
                                                                                                        밁
                                                                                                                                           Ś
                                                                                                                                                                              밁
                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                              8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-08-455-526-42 (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-455-526-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR APPLICATION NUMBER: US 08/2>,...
APPLICATION NUMBER: US 07/688,356
FILING DATE: 29-AUG-1994
APPLICATION NUMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY AGENT INFORMATION:
NAME: NO. 5789553 and, Greeta E.
REGISTRATION NUMBER: 35,302
REGISTRATION NUMBER: 27866/308
TELECOMMUNICATION INFORMATION:
TETTRAPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: (312) 984-97
TELEX: 25-3856
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MOLECULE TYPE:
FEATURE:
NAME/KEY: CD:
LOCATION: 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                       2121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 3789 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: Patentin Release #1.0, CURRENT APPLICATION DATA: APPLICATION UNMEER: US/08/455,526 FILING DATE: 31-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                2229 CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                 1992 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG 1939
                                                                                                                                                                                                                                                                                                                          2169 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG------
                                                                                                                                                                                                                   143
                                                                                                                                                                                                                                                                                          123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STATE: 1
 191 GluPhe-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STRANDEDNESS: SIR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE: (312) -- TELEPHONE: (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER: IBM PC compatible OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                  90 LeuGluIlePheGlyArgLeu--------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: nucleic acid
                                                                    AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                         CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGGGGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                           IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                           SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
                                                                                                                                                                                                                   ThrAsnProAsnValCys-----
                                                                                                                                                                                                                                                                                      ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CDS
181..
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       79.00
36.00%
24.67%
7.06%
---ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US/08/455,526
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  42:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative: Mismatches: Indels:
                                                                                                                                                                                                                  ----PheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3789
37
17
50
46
                                                                                                                                                                                                                                                     -----CATCAA
                                                                                                                                                                                                                                                                                                                             -GTAGCCCTTCTT 2122
                                                                                                                                                                                                                                                         2113
```

밁

AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG 1879

```
ફ
                                              US-10-034-500-2 (1-218) x US-08-455-525-42 (1-3789)
                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ફ
                                                                                                    Query Match:
                                                                                                                                                                 Alignment Scores: Pred. No.:
                                                                                                                                                                                                                 ;
US-08-455-525-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-08-455-525-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        equence 42, Application US/08455525
Patent No. 5800987
                                                                                                                                                                                                                                                                                                                                                               INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: No. 5800987and, Greta
REGISTRATION NUMBER: 35,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US/08/455,525
FILING DATE: 31-MAY-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/297,494
FILING DATE:
APPLICATION NUMBER: US 07/688,356
APPLICATION NUMBER: US 07/688,356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER OF SEQUENCES: 5
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Beavo, Joseph A.
APPLICANT: Bentley, Kelley
APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
                                                                                                                                                                                                                                                                                MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                              TELEFAX: 15-3856
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STREET:
                                                                                                                                                                                                                                                                                                                                                                                             TELEPHONE: (312) 984-9740
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                                                                              TYPE: nucleic acid
STRANDEDNESS: sing
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                               LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chicago
: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60603
                                                                                                                                                                                                                                                                                                                                              3789 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Two First National Plaza, 20 South Clark
                                                                                                                                                                                                                                181..3006
                                                                                                                                                                                                                                                  CDS
                                                                                                                                                                                                                                                                                  CDNA
                                                                                                                                                                                                                                                                                                             single
                                                                                                 79.00
36.00%
24.67%
7.06%
                                                                                                                                                                 2.47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Phosphodiesterases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          DNA Encoding Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Greta E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 27866/30822
                                                                                                                                               Length:
Matches:
                                                                                                 Mismatches:
Indels:
                                                                                                                                 Conservative:
----ThrProValGlyAspGly 102
```

```
닭
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-09-139-491-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 42, Application US/09139491 Patent No. 6015677
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Patent No.
FILING DATE:
APPLICATION NUMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 6015677and, Greta E.
REGISTRATION NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 27866/3082:
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GENERAL INFORMATION: APPLICANT: Beavo,
                                                                                                                                                                                            PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/455,525
FILING DATE: 31-MAY-1995
APPLICATION NUMBER: 08/297,494
                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1878 GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1938 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1992 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG 1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2169 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              171 AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   207 GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           191 GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CITY: Chicago
STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              STREET: Two F1:
STREET: Street
                                                                                                                                                                                                                                                                                     CLASSIFICATION:
                                                                                                                                                                                                                                                                                                          FILING DATE
                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGAGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Two First National Plaza, 20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Beavo, Joseph A.
Bentley, Kelley
Charbonneau, Harry
Sonnenburg, William K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Phosphodiesterases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           DNA Encoding Mammalian
                                                                                                                                                                                                                                                                                                                              US/09/139,491
                                            27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----CATCAA
                                                                                                                                                                                                                                                                                                                                                                        #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -GTAGCCCTTCTT 2122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1879
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                               RESULT 20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-09-139-491-42 (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-139-491-42
                                                                                                                                                                                                                                                                              PCT-US92-03222-42/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEX: 25-3856
INFORMATION FOR SEQ ID NO: 42:
SEQUENCE CHARACTERISTICS:
LENGTH: 3789 base Type.
                                                                                                                                                                                                                                          Sequence 42, Application PC/TUS9203222 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2169
                                                                                        APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
TITLE OF INVENTION: DNA Encoding Mammalian
TITLE OF INVENTION: Phosphodiesterases
NUMBER OF SEQUENCES: 58
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1992 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT------CCCGTCATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2052 CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2229 CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
 ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell STREET: Two First National Plaza, 20 South Clark STREET: Street CITY: Chicago
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LENGTH: 3789 base pairs TYPE: nucleic acid STRANDEDNESS: single TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION:
                                                                                                                                                                                                                                                                                                                                 GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                                           GluPhe------ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        AsnSerGlySerValLeuValAspGlyLeuGlnLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGGATCCCG-----GTAGCCCTTCTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuGluIlePheGlyArgLeu-----
                                                                                                                                                                                                                                                                                                                                                                   GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                         AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
Chicago
                                                                                                                                                                                                    Beavo, Joseph A.
Bentley, Kelley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            181..3006
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.47
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         42:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----CATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2122
```

```
S
                                                                                                                                                                          Ş
                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x PCT-US92-03222-42 (1-3789)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PCT-US92-03222-42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TELEFAX: (312) 984-9740
TELEX: 25-3856
INFORMATION FOR SEQ ID NO: 42
SEQUENCE CHARACTERISTICS:
LENGTH: 3789 base pairs
TYPE: NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/ACENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                    2112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      MOLECULE TYPE: cDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                     2229 CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                          123 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                   103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME: Noland, Greta E. REGISTRATION NUMBER: 35 REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: POFILING DATE: 19920420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           90 LeuGluIlePheGlyArgLeu-------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY: CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY:
AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG 1879
                                GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                  AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                            SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                  CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1993
                                                                                                                                                                                                                                                                                                                                                                AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG-
                                                                                                                                                                                                                  ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG 2053
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   2.47
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PCT/US92/03222
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          35,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3789
37
17
50
46
                                                                      --- CCCGTCATGGAG 1939
                                                                                                                                                                                                                                                                                        -----CATCAA
                                                                                                                                                                                                                                                                                            2113
                                                                                                                                                                                                                                                                                                                                                                    2122
```

```
S
                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-07-872-644-38/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                   US-10-034-500-2 (1-218) x US-07-872-644-38 (1-4131)
                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                            US-07-872-644-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Patent No. 5389527
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/872,644
FILING DATE: 19920420
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/ACENT INFORMATION:
NAME: No. 5389527and, Greta E.
REGISTRATION NUMBER: 35,302
REGISTRATION NUMBER: 35,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEFAX: (312) 984-97-
TELEX: 25-3856
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               equence 38,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTMARE: PatentIn.Release #1.0
                                                                                                                                                                                                                                         No
:
                                                                                                                                                                                                                                                                                                                                                                                                                                          SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REFERENCE/DOCKET NUMBER: 27
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Bentley, Kelley
APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
TITLE OF INVENTION: DNA Encoding Mamma
TITLE OF INVENTION: Phosphodiesterases
                                                                                                                                                                                                                                                                                                                                            FEATURE:
                                                                                                                                                                                                                                                                                                                                                           MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
207
                                                                                                                                                                                                                                                                                                        NAME/KEY:
LOCATION:
                                                                                    90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TELEPHONE: (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       STREET:
                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: NUCLEIC ACID
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                             ropology:
                                                                                                                                                                                                                                                                                                                                                                                                                           ENGTH:
                                                  CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2074
                                                                                  LeuGlullePheGlyArgLeu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTGGCTGCGATACTGCGCCTCATTCACTTT 1849
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chicago
: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            8, Application
5389527
                                                                                                                                                                                                                                                                                                                                                                                                                           4131 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Two First National Plaza, 20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PatentIn.Release #1.0,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Beavo, Joseph A.
                                                                                                                                                                                                                                                                                                          148..2910
                                                                                                                                                                                                                                                                                                                                                                             linear
                                                                                                                                                                                                                                                                                                                                                           CDNA
                                                                                                                                                                                                                                                                                                                                                                                        single
                                                                                                                                                                     2.85
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US/07872644
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                27866/30822
                                                                                                                                                                                   Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mammalian
                                                                                                                                                                      Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Version #1.25
                                                                                  ----ThrProValGlyAspGly 102
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              RESULT 22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 38, Application US/08297494 Patent No. 5580771
                                                                                                   TELEX: 25-3856
INFORMATION FOR SEQ ID NO:
                                                                                                                                                          CLASSIFICATION: 435
PRIOR APPLICATION NUMBER: US 07/688
APPLICATION NUMBER: US 07/688
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 5580771and, Greta E
REGISTRATION NUMBER: 35,302
REGISTRATION NUMBER: 2786
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
                                                           SEQUENCE CHARACTERISTICS:
LENGTH: 4131 base pair
                                                                                                                                                                                                                                                                                                                                                                                 COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/297,494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: DNA Encoding Mamma
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1782 GTGGCTGCGATACTGCGCCTCATTCACTTT 1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1842 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1896 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT------CCCGTCATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2073 AAAGGCGTGCATCCAGTTGGTAGGGGGGATCCCG-----GTAGCCCCTTCTT 2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            191 GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        171 AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            207 GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: Two Fit
                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Chicago
                                   TYPE: nucleic acid
                                                                                                                                         TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COUNTRY:
                   STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAAATTCATGTCCTG 1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ThrAsnProAsnValCys-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Bentley, Kerry
Bentley, Kerry
Charbonneau, Harry
Sonnenburg, William K.
Sonnenburg, William K.
Sonnenburg Mammalian
Sonnenbodiesterases
                                                         4131 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Two First National Plaza, 20 South Clark
                                                                                                                                           (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Beavo, Joseph
linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Marshall, O'Toole, Gerstein, Murray &
              single
                                                                                                                                                                                                                                                                                                         US 07/688,356
                                                                                                                                                                                                                                            Greta E.
                                                                                                                                                                                                      27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----PheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----CATCAA 2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1843
```

MOLECULE TYPE:

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ; LOCATION:
US-08-297-494-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x US-08-297-494-38 (1-4131)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-297-510-38/c
                                                                                                                                                                                                                                                                                                                                                                              Sequence 38, Application US/08297510 Patent No. 5602019
                                                                                                                                                                                                                                                 GENERAL INFORMATION:
APPLICANT: Beavo, Joseph A.
APPLICANT: Bentley, Kelley
APPLICANT: Charbonneau, Harry
APPLICANT: Charbonneau, William K.
APPLICANT: Sonnenburg, William K.
TITLE OF INVENTION: DNA Encoding Mammalian
TITLE OF INVENTION: Phosphodiesterases
             ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatil
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1782 GTGGCTGCGATACTGCGCCTCATTCACTTT 1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2073 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG-------GTAGCCCTTCTT
                                                                                                                                                                                                                NUMBER OF SEQUENCES: 5
                                                                                                  STREET: Two First
STREET: Street
CITY: Chicago
STATE: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           191 GluPhe------ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu
                                                                                     STATE: I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            90 LeuGluIlePheGlyArgLeu---------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NAME/KEY:
 OPERATING SYSTEM:
                                                                                                                                                                              ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTTGGCAAG 1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
                                                                                                                                                            Two First National Plaza,
                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               148..2910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   79.00
36.00%
24.67%
7.06%
PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          . 85
                                                                                                                                                                                                                                    58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative:
                                                                                                                                                              20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----CATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2026
```

```
RESULT 24
US-08-479-532-38/c
; Sequence 38, Application US/08479532
                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                    В
                                                                                                                                                                                                                                                                                                                                                                                                                                                  Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x US-08-297-510-38 (1-4131)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-297-510-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEX: 25-3856
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/686
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 5602019and, Greta E
REGISTRATION NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 2786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 MOLECULE TYPE: cDNA FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                           1896 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT--
                                                                                                                                                                                                                                                                               1956 CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                      123
                                                                                                                                                                          191 Gluphe-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TELEPHONE: (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     90 LeuGluIlePheGlyArgLeu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TOPOLOGY: lir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CLASSIFICATION: 435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG--
                                                                                                                                                                                                                                                                                                           SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                GTGGCTGCGATACTGCGCCTCATTCACTTT 1753
                                                                                                      GluValValLeuArgGlyValAsnPhe
                                                                                                                                      AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG 1783
                                                                                                                                                                                                                                           AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAAATTCATGTCCTG 1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 H: 4131 base pairs nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2.85
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                          ---ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/297,510
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Greta E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         07/688,356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4131
37
17
50
46
8
                                                                                                                                                                                                                                                                                                                                                                                                                  -----CATCAA
                                                                                                                                                                                                               ----CCCGTCATGGAG 1843
                                                                                                                                                                                                                                                                                                                                                                                                                       2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         2026
```

```
S
                                                                                             र्
                                                                                                                                 В
                                                                                                                                                              S
                                                                 В
                                                                                                                                                                                               US-10-034-500-2 (1-218) x US-08-479-532-38 (1-4131)
                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                                                                                   score:
                                                                                                                                                                                                                                                                                                                  Pred. No.:
                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                  US-08-479-532-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/ARGENT INFORMATION:
NAME: No. 5776752and, Greta E.
REGISTRATION NUMBER: 35,302
REGISTRATION NUMBER: 35,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Release #1.0, Version #1.25 CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                    MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TELEPAX: 15-1856
                                                                                              103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   STREET:
                                                                                                                                                            90 LeuGluIlePheGlyArgLeu-------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELEPHONE: (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                    LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ENGTH: 4131 base pairs
                                                                                                                             CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2074
                               ThraspGlyHisasnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Chicago
: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        6060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5776752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Two First National Plaza, 20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Charbonneau, Harry
Sonnenburg, William K.
NENTION: DNA Encoding Mammalian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Bentley, Kelley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Beavo, Joseph A.
                                                                                                                                                                                                                                                                                                                                                                                    148..2910
                                                                                                                                                                                                                                                                                                                                                                                                     Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                   linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    07-JUN-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                      CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   single
                                                                                                                                                                                                                                             36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                             2.85
79.00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Phosphodiesterases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    08/297,494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US/08/479,532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    27866/30822
                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                              Conservative: Mismatches:
                                                                                                                                                                                                                                                  Indels:
-----CATCAA 2017
                                                               GTAGCCCTTCTT 2026
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   먉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-08-455-526-38/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 38, Application US/0845526 Patent No. 5789553
                                                                                                                                                                                                                    APPLICATION NUMBER: US/08/455,52
FILING DATE: 31-MAY-1995
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/297,49
PILLING DATE: 29-AUG-1994
APPLICATION NUMBER: US 07/688,35
FILLING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 5789553and, Greta E.
REGISTRATION NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 27866/3
TELEPHONE: (312) 346-5750
                                                                                                                                                                  INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TITLE OF INVENTION: DNA Encoding Mamma: TITLE OF INVENTION: Phosphodiesterases NUMBER OF SEQUENCES: 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1782 GTGGCTGCGATACTGCGCCTCATTCACTTT 1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1842 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG 1783
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1896 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG 1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          2016 ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG 1957
                                       MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          207 GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            191 GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            171 AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STREET: Two First National Plaza, 20 South Clark STREET: Street CITY: Chicago STATE: Illinois
NAME/KEY:
                                                            TOPOLOGY:
                                                                       STRANDEDNESS:
                                                                                               TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MEDIUM TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                       TELEFAX:
                                                                                                                         ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ThrAsnProAsnValCys----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60603
                                                                                                                     4131 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           USA
                                                                                                                                                                                                       (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Beavo, Joseph A.
Bentley, Kelley
Charbonneau, Harry
Sonnenburg, William K.
                                                          linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Floppy disk
                                                                              single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DNA Encoding Mammalian
                                                                                                                                                                                                                                                                                                                                                                          US 07/688,356
                                                                                                                                                                                                                                                                                                                                                                                                                 US 08/297,494
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US/08/455,526
                                                                                                                                                                  38:
                                                                                                                                                                                                                                                                      27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ------PheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 152
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                               RESULT 26
US-08-455-525-38/c
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-034-500-2 (1-218) x US-08-455-526-38 (1-4131)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-08-455-526-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                    Patent No. 5800987
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                 Sequence 38,
                                                                                                                                                                                                                              APPLICANT: Beavo, Joseph A.
APPLICANT: Bentley, Kelley
APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
TITLE OF INVENTION: DNA Encoding Mammalian
TITLE OF INVENTION: Phosphodiesterases
NUMBER OF SEQUENCES: 58
CORRESPONDENCE ADDRESS:
               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM C compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                            1782 GTGGCTGCGATACTGCGCCTCATTCACTTT 1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1842
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1896 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2073 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      2133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NO.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             123
                                                                                                                                                                     STREET: Two First National Plaza, STREET: Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               90 LeuGluIlePheGlyArgLeu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 LOCATION:
    APPLICATION NUMBER:
                                                                                                                                                                                                 ADDRESSEE: Marshall, O'Toole, ADDRESSEE: Bicknell
                                                                                                                         COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluPhe------ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60603
                                                                                                                                        Chicago
: Illinois
                                                                                                                                                                                                                                                                                                                                                                                  Application US/08455525
                                                                                                                         USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 148.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 .2910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        2.85
79.00
36.00%
24.67%
7.06%
    US/08/455,525
                                                                                                                                                                                                                 Gerstein, Murray &
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----ThrProvalGlyAspGly 102
                                                                                                                                                                                     20
                                                                                                                                                                                   South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            4131
37
17
50
46
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----CATCAA 2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -GTAGCCCTTCTT 2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1957
RESULT 27
US-09-139-491-38/c
; Sequence 38, Application US/09139491
; Patent No. 6015677
                                                                                                                                                                    Ş
                                                                                                                                                                                                     밁
                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-08-455-525-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US 07/688
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 5800987and, Greta F
REGISTRATION NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 2786
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 31-MAY-1
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MOLECULE TYPE: FEATURE:
                                                                               1782
                                                                                                                                                                                                                                                              1956
                                                                                                                                                                                                                                                                                                                                                                                    2025 -----CAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELECOMMUNICATION INFORMATION: TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                123
                                                                                                                                                                                                                                                                                                                                                      143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          103
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LENGTH: 4131 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  (312) 984-9740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CDS
148..2910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 31-MAY-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             2.85
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      08/297,494
```

```
US-10-034-500-2 (1-218) x US-08-455-525-38 (1-4131)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     2073 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG------GTAGCCCTTCTT 2026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2133 CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2074
                                                                                                                                                                                                                  1896 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG 1843
                                                                                                                                                             191 GluPhe------ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   90 LeuGluIlePheGlyArgLeu-----ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                     AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                          SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
GTGGCTGCGATACTGCGCCTCATTCACTTT
                                                  GluValValValLeuArgGlyValAsnPhe
                                                                                                                                                                                                                                                                                                                          CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IleLysMetHisGluThrVallleAsnGlnMetProProGlnAlaAlaVallleLeuLeu 122
                                                                                                        AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCTCATTGGCAAG 1783
                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAATTCATGTCCTG 1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US 07/688,356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
  1753
                                                     216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                4131
37
17
50
46
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----CATCAA
```

```
밁
                                                               გ
                                                                                                  밁
                                                                                                                                S
                                                                                                                                                                 US-10-034-500-2 (1-218) x US-09-139-491-38 (1-4131)
                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                       US-09-139-491-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEX: 25-3856
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
APPLICANT: Beavo, Joseph
                               2073 AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCCG------GTAGCCCCTTCTT 2020
                                                                                                                                                                                                                                                                                     No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          REFERENCE/DOCKET NUMBER: 27
TELECOMMUNICATION INFORMATION:
TELEPHONE: (312) 346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: US 07/66
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NO. 6015677and, Greta
RECISTRATION NUMBER: 35.302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR APPLICATION DATA:
APPLICATION NUMBER: US/08/455,:
PILING DATE: 31-MAY-1995
APPLICATION NUMBER: 08/297,494
PILING DATE:
PILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Charbonneau, Harry
APPLICANT: Sonnenburg, William K.
TITLE OF INVENTION: DNA Encoding Mammalian
TITLE OF INVENTION: Phosphodiesterases
                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                       MOLECULE TYPE: CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CURRENT APPLICATION DATA: APPLICATION NUMBER: US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES: 51
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                               103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
123 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEPHONE: (312) 984-9740
                                                                                                                              90 LeuGluIlePheGlyArgLeu-------ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                   TYPE: nuclear STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                          TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ADDRESSEE: Marshall, O'Toole, Gerstein, Murray & ADDRESSEE: Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ENGTH:
                                                                                                CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Chicago
: Illinois
                                                                                                                                                                                                                                                                                                                                                                                                                                                      nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4131 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Two First National Plaza, 20 South Clark
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Bentley,
                                                                                                                                                                                                                                                                                                                                                                                                                          linear
                                                                                                                                                                                                                                                                                                                                                         148..2910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                   single
                                                                                                                                                                                                                  79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                     2.85
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Kelley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US 07/688,356
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/08/455,525
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US/09/139,491
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Greta E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               27866/30822
                                                                                                                                                                                                  Indels:
Gaps:
                                                                                                                                                                                                                                    Conservative: Mismatches:
                                                                                                                                                                                                                                                                     Matches:
                                                                                                                                                                                                                                                                                   Length:
                                                                                                                                                                                                                  4131
37
17
50
46
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
PCT-US92-03222-38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PCT-US92-03222-38/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               RESULT 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 38, Applicat GENERAL INFORMATION:
                                                                                                                                                                           TELEX: 25-3856
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS
                                                                                                                                                                                                                                                                                                                   PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/688,356
FILING DATE: 04-APR-1991
ATTORNEY/AGENT INFORMATION:
NAME: NOLand, Greta E
REGISTRATION NUMBER: 35,302
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARB: Patentin Release #1.0, Version
CURRENT APPLICATION DATA:
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1782 GTGGCTGCGATACTGCGCCTCATTCACTTT 1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2025
                                                                             MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER OF SEQUENCES: 5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1842 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1896 GAAACTGGCAAAGTTGGAGTCGATGGCAGCCACAGGCTGGAT-----CCCGTCATGGAG 1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1956 CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1897
                                                            FEATURE:
                                                                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2016 ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAAATTCATGTCCTG 195
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       171 AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          207 GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          191 GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153 SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        143 ThrAsnProAsnValCys-----
                  NAME/KEY:
LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STREET: Two First National Plaza, 20 South Clark
STREET: Street
CITY: Chicago
STATE: Illinois
                                                                                                  TOPOLOGY: 11
                                                                                                                                                                                                                                   TELEFAX:
                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: PIFILING DATE: 19920420
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COUNTRY: USA
                                                                                                                                   TYPE: NUCLEIC ACID
                                                                                                                                                                                                                                       TELEPHONE: (312) 346-57
TELEFAX: (312) 984-9740
                                                                                                                                                                                                                                                                                                    REGISTRATION NUMBER: 35,302
REFERENCE/DOCKET NUMBER: 27
                                                                                                                                                                                                                                                                                                                                                                                                                                          CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE:
                                                                                                                                                        ENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application PC/TUS9203222
                                                                                                                                                        4131 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Charbonneau, Harry
Sonnenburg, William K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Bentley, Kelley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Beavo, Joseph A.
                  148..2910
                                                                                           linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                --CAC---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Bicknell
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Marshall, O'Toole, Gerstein, Murray &
                                                                                                              single
                                                                                                                                                                                                                                                              346-5750
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              DNA Encoding Mammalian Phosphodiesterases
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PCT/US92/03222
                                                                                                                                                                                                  38:
                                                                                                                                                                                                                                                                                                      27866/30822
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----PheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -CATCAA 2017
```

```
뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ₽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        RESULT 29
US-08-348-891A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x PCT-US92-03222-38 (1-4131)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 1, Application US/08348891A Patent No. 5654136
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2025
                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/348,891A
FILING DATE: 25-NOV-1994
                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: SASAKI, Keiko
APPLICANT: MORI, Takayuki
APPLICANT: MAKINO, Satoshi
TITLE OF INVENTION: ATTENUATED MEASLES VIRUS VACCINE,
TITLE OF INVENTION: CONTAINING SPECIFIC NUCLEOTIDE SE
TITLE OF INVENTION: ITS ABSOLUTE IDENTIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2016
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1782 GTGGCTGCGATACTGCGCCTCATTCACTTT 1753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1896 GAAACTĞĞCAAAĞTTĞGAĞTCĞATĞĞCAGCCACAGĞCTĞGAT-----CCCĞTCATGGAG 1843
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1956
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Мо.
:
                CLASSIFICATION: 435
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                              CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      143
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         90 LeuGluIlePheGlyArgLeu------
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                           ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluValValValLeuArgGlyValAsnPhe 216
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluPhe-----ValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CAGCATGCTCAGGATGGCCATGGAAGTGTCATCCTCGGGCAGAGAGCGAGGAGTGTATGT 1897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleVal-----AlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ACAGAACCGGGCCAGTGTCGGGCAGTCAATTTTGTAGTTATTGATGAAAATTCATGTCCTG 1957
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ThrAsnProAsnValCys------------PheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AAAGGCGTGCATCCAGTTGTGGTAGGGGGGATCCCG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CTCGAGGTAGTTGGTGAGCTCCAGGTTCTTGTAGAGCAGGTAGCAGAAGTGGGAGACAGA 2074
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 AAGTTTGGTGTACTCGTCATCAGAGACCTTCATGTGGTACATCATCATCTCATTGGCAAG
                                                                                                                                                                                                                                                             Arlington
: Virginia
                                                                                                                                                                                                                                                                                                      E: YOUNG & THOMPSON
745 South 23rd Street
                                                                                                                                                                                                                                            USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.85
79.00
36.00%
24.67%
7.06%
                                                                                                                                                                                                                                                                                                                                                                     19
US 07/848,400
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                         NUCLEOTIDE SEQUENCE AND A METHOD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----ThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----CATCAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 2017
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               2026
```

```
Ś
                                                                                                                                                á
                                                                                                                                                                                 밁
                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                             Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-08-348-891A-1 (1-15894)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-348-891A-1
                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TELEFAX: 703-685-0573
TELEX: 248425 EMBON
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                        14562
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LOCATION:
FEATURE:
NAME/KEY:
LOCATION:
14814 ---GATTGCTTCAATTTCATAGTTAGTAATATCCCTACCTCTAGTGGGGGTTTÄTCCAT 14870
                                                                                                                                                                                                                                            14622 ACTTAT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LOCATION:
FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FEATURE:
NAME/KEY:
                                                                                                                     14694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: UP 3-293625
FILING DATE: 14-CCT-1991
ATTORNEY/AGENT INFORMATION:
NAME: PATCH, Andrew J
REGISTRATION NUMBER: 32,925
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LOCATION: FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TELECOMMUNICATION INFORMATION: TELEPHONE: 703-521-2297
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LOCATION: FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LOCATION: FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MOLECULE TYPE: cDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                               47
                                                                                                                                                   62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                            79
                                                                                                                                                                                                                                                                        27 LysHisValAlaValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIle 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                      7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ENGTH:
                                                                                                                                                                                                            AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThr-----
                                                                                                                                                                                                                                                                                                        TGCCTTGAGCCAGGGGAGGACGGCTTGTTCTTGGGTGAGGGATCGGGTTCTATGTTGATC 14621
                          AlaGluCys-----
                                                          GGTAATATTGTCAAAGTGCTCTTTAACGGGAGGCCCGAAGTCACGTGGGTAGGCAGTGTA 14813
                                                                                                                     CAAAGGGAATTAGCACCCTATCCCTCCGAAGTTGGCCTTGTCGAACACAGAATGGGAGTA 14753
                                                                                                                                                                                                                                                                                                                                   CysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetMet 26
                                                                                                                                                   -----PheAlaProTyrSerValIleIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15894 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CDS
1807..3327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              5458..7107
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3438..4442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       9234..15782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   108..1682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           10-MAR-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            single
                                                                                                                                                                                 ---AAGTGCTTCTATAATAGTGGGGTTTCCGCCAATTCTAGATCTGGT 14693
                                                                                                                                                                                                                                                                                                                                                                                                  25.5
79.00
34.75%
17.70%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   .9121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ٠.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    KP-7501
                                                                                   -----ProGlnGlySerTrpAsnSerCysVal 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                  Indels:
                          -----AlavalAsnThrIleLys 87
                                                                                                                                                                                                                                               -AAGGAGATACTTAAACTA 14645
                                                                                                                                                                                                                                                                                                                                                                                               15894
54
52
81
118
13
```

61

69

```
RESULT 30
US-08-905-817-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     $
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          र्
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 1, Apr. -
Sequence 1, A
                      ZIP: 22202

ZIP: 22202

COMPUTER READABLE FORM:

MEDIUM TYPE: Ploppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PatentIn Release #1.0, Vei

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/905,817

FILING DATE: 04-AUG-1997

CLASSIFICATION DATA:

APPLICATION NUMBER: US 08/348,891

PRIOR APPLICATION DATA:

APPLICATION DATA:

APPLICATION DATA:

APPLICATION DATA:

APPLICATION DATA:

APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15408 TCTATCCTCATCCTC 15422
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15168 GAATCATCTGTGAGGACTTCACCTGGACTTATAGGTCACATCCTATCCATTAAGCAACTA 15227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     15111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15051 GTGAACCTTGTATACCCTAGATACAGCAACTTCATATCTACTGAATCTTATTTGGTTATG 15110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      14991 CCTTTCAGCGGGATTTTGTTCAGGGATTTATAAGTTATGTAGGGTCTTATTATAGAGAA 15050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                15348 AAGCTGTGCAAAGAATTGATCCACCATGATGTTGCCTCAGGGCAAGATGGATTGCTTAAT 15407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    14931 ATCTTATCGATGGCTCTGCTCCTGGGCAAAATAGGATCAATACTGGTGATTAAGCTTATG : 4990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER OF SEQUENCES: 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: MORI, Takayuki
APPLICANT: MAKINO, Satosh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PLICANT: MAKINO, SATOSHI
TILE OF INVENTION: ATTENUATED MEASLES VIRUS VACCINE,
TILE OF INVENTION: CONTAINING SPECIFIC NUCLEOTIDE SEQUENCE AND A METHOD
TILE OF INVENTION: ITS ABSOLUTE IDENTIFICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CITY: Arlington STATE: Virginia
       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 DDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAsp 157
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluValValValLeu 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AAAAAACTTACACCTATAGAGCAGGTGCTGATCAATTGCGGGTTGGCAATTAACGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AGCTGCATACAAGCAATTGTGGGGAGACGTAGTTAGTAGAGGTGATATCAATCCTACTCTG 15287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ACAGATCTCAAGGCTAACCGGCTAATGAATCCT---GAAAAGATTAAGCAGCAGATAATT 15167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ThraspGlyHisasnAsnLeuGlyMetAsnProValGluGluValLys------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               IleAsnGlnMetProProGln-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TCAGATATAGAGACCTTGCCTAACAAAGATACTATAGAGAAGCTAGAGGAATTGGCAGCC 14930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerAspLeuGlu-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----GlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnPro 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Application US/08905817
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----GlyAspGlyIleLys------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                745 South 23rd Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SASAKI, Keiko
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 YOUNG & THOMPSON
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---IlePheGlyArgLeuThrProVal---
US 07/848,400
                                                                                                                                                                                                                                                                                                                              Version #1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----MetHisGluThrVal 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ---AlaAlaValIleLeuLeu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        138
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  á
                                     밁
                                                                                                     δ
                                                                                                                                                                            문
                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-08-905-817-1 (1-15894)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-08-905-817-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELEFAX: 703-685-0573
TELEX: 248425 EMBON
INFORMATION FOR SEQ ID NO-
SEQUENCE CHARACTERISTICS
LENGTH: 15894 base pai
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 14562 TGCCTTGAGCCAGGGGAGGACGGCTTGTTCTTGGGTGAGGGATCGGGTTCTATGTTGATC 14621
                                                                                                                                                                                                                                               14622 ACTTAT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FEATURE:
NAME/KEY:
LOCATION:
14814 ---GATTGCTTCAATTTCATAGTTAGTAATATCCCTACCTCTAGTGTGGGGGTTTATCCAT 14870
                                                                                                                      14694 CAAAGGGAATTAGCACCCTATCCCTCCGAAGTTGGCCTTGTCGAACACAGAATGGGAGTA 14753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 10-MAR-1992
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 3-293625
FILING DATE: 14-OCT-1991
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FEATURE:
NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NAME/KEY:
LOCATION:
                            79 AlaGluCys-----
                                                                                                                                                                                                               47 AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThr------
                                                                                                                                                                                                                                                                          27 LysHisValAlaValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIle 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        STRANDEDNESS:
TOPOLOGY: lir
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NAME/KEY:
                                                                                                                                                                                                                                                                                                                                         7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LOCATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  NAME/KEY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LOCATION:
                                                                                                                                                                                                                                                                                                                               CysThrLysArgValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetMet
                                                         GTAATATTGTCAAAGTGCTCTTTAACGGGAGGCCCGAAGTCACGTGGGTAGGCAGTGTA
                                                                                                                                                   -----PheAlaProTyrSerValIleIle-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    15894 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CDS
108..1682
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CDS
7271..9121
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sg
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     5458..7107
                                                                                                                                                                                  -----AAGTGCTTCTATAATAGTGGGGTTTCCGCCAATTCTAGATCTGGT 14693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            9234..15782
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3438..4442
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1807..3327
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     single
                                                                                                                                                                                                                                                                                                                                                                                                                  25.5
79.00
34.75%
17.70%
7.06%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               KP-7501A
                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                        ----ProGlnGlySerTrpAsnSerCysVal 78
                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative:
                           ----AlavalAsnThrIleLys 87
                                                                                                                                                                                                                                               -AAGGAGATACTTAAACTA 14645
                                                                                                                                                                                                                                                                                                                                                                                                    54
52
81
118
                                                         14813
                                                                                                                                                   69
                                                                                                                                                                                                                61
```

```
RESULT 31
US-09-103-840A-2/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                Best Local Similarity:
                Query Match:
                                                  Percent Similarity:
                                                                                                     Alignment Scores:
                                                                                                                                         US-09-103-840A-2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                   SEQ ID NO 2
                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Patent No.
                                                                                                                                                                                                                                                                                                                                    FILE REFERENCE: 24366-20007.00
CURRENT APPLICATION NUMBER: US/09/103,840A
CURRENT FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT: VENTER, John C.
TITLE OF INVENTION: DNA SEQUENCES
TITLE OF INVENTION: TUBERCULOSIS
                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: FLEISCHMAN, RObert D. APPLICANT: WHITE, Owen R. APPLICANT: FRASER, Claire M.
                                                                                                                                                                                                                                                                                                   SOFTWARE: PatentIn Ver.
                                                                                                                                                                                                                                                                                                                   NUMBER OF SEQ ID NOS: 2
                                                                                                                                                        OTHER INFORMATION:
OTHER INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            15228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  15111
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       15051
                                                                                                                                                                                                                            ORGANISM: Mycobacterium tuberculosis
                                                                                                                                                                                                                                                  TYPE: DNA
                                                                                                                                                                                                                FEATURE:
                                                                                                                                                                                                                                                               LENGTH: 4403765
                                                                                      No . .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     123
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               92
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 88
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GAATCATCTGTGAGGACTTCACCTGGACTTATAGGTCACATCCTATCCATTAAGCAACTA 15227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTGAACCTTGTATACCCTAGATACAGCAACTTCATATCTACTGAATCTTATTTGGTTATG 15110
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ATCTTATCGATGGCTCTGCTCCTGGGCAAAATAGGATCAATACTGGTGATTAAGCTTATG 14990
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TCTATCCTCATCCTC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluValValValLeu 211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAGCTGTGCAAAGAATTGATCCACCATGATGTTGCCTCAGGGCAAGATGGATTGCTTAAT 15407
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAAAAACTTACACCTATAGAGCAGGTGCTGATCAATTGCGGGGTTGGCAATTAACGGACCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TCAGATATAGAGACCTTGCCTAACAAAGATACTATAGAGAAGCTAGAGGAATTGGCAGCC 14930
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerAspLeuGlu----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AlaValCysGlnGluPheValAsnSerValPheCysGlnGluGlnIleLeuValThrGlu 206
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AGCTGCATACAAGCAATTGTGGGAGACGTAGTTAGTAGAGGTGATATCAATCCTACTCTG 15287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ---SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAsp
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ACAGATCTCAAGGCTAACCGGCTAATGAATCCT---GAAAAGATTAAGCAGCAGATAATT 15167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLys------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        IleAsnGlnMetProProGln----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CCTTTCAGCGGGGATTTTGTTCAGGGATTTATAAGTTATGTAGGGTCTTATTATAGAGAA 15050
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            2, Application US/09103840A
5. 6294328
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ------GlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnPro 186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------GlyAspGlyIleLys-----
                                                                                                                                                      CDC 1551 "n" bases at various positions represent a, t, c or g
3.17e+05
77.50
41.04%
24.86%
6.93%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ---IlePheGlyArgLeuThrProVal-
                                                                                                                                                                                                                                                                                                                                                                                                         FOR
                                                Length:
Matches:
Conservative:
                Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                         STRAIN ANALYSIS IN MYCOBACTERIUM
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----MetHisGluThrVal 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ---AlaAlaValIleLeuLeu 122
4403765
43
28
77
25
                                                                                                                                                                          throughout
                                                                                                                                                                            the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               99
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              172
```

```
5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 32
US-08-470-179-93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Db 1417294 GGCAACCCGCGGTCTGACCACGCCGTGGTGGTGACCGGTGTCGATACCGAA--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Db 1417348 AGCATCAACGCCGAGATGATCTGGGGCCCAGCCCGTCGAGGAAACCGACAGT-----GCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Db 1417396 ATG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Db 1417678 CGCCAGCAGACÁTACGACGACTGCGTCCTGATGTCGGCCGCGGACGTGATCGGTCAÁGTG 1417619
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-09-103-840A-2 (1-4403765)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 93, Application US/08470179
Patent No. 5645994
GENERAL INFORMATION:
APPLICANT: Huang Ph.D. Wai Mun
TITLE OF INVENTION: Method and Compositions
TITLE OF INVENTION: Identification of Specie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1417513
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1417570 ACACCCAGCGTCGTGCACCCCGGGTCCATCTACACA---AAGCCGGCCGACGCCGAGCAC 1417514
                         TELEFAX: 801-531-9168 INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
                                                              NAME: Sweigert Ph.D. Susan I REGISTRATION NUMBER: 36,289 REFERENCE/DOCKET NUMBER: 26
TELECOMMUNICATION INFORMATION: TELEPHONE: 801-532-1922
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                143 ThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAlaGluGlyLysAla 162
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              163 IleIleAspGlnIleValAlaLeuAsn---SerGlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          123 ThrAspGlyHisAsnAsnLeuGlyMetAsnProValGluGluValLysSerIleTyrGln 142
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         103 IleLysMetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeu 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 83 ValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGly 102
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     70
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            50 MetproLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaproTyrSerValllelle 69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              30 AlaValArgGluProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAla 49
                                                                                                                                                                                                                  FILING DATE:
CLASSIFICATION:
                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                      ZIP: 84110
                                                                                                                                                                                                                                                                                                                                                                                                                                                             COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Salt Lake City
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProGlnGlySerTrpAsnSerCysValAlaGluCys------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ArgValGluSerTyrAsnTyrLeuValAspTyrSerGlySerMetMetLysHisVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTCGACGCCGTTATCACCGAC---GAGGACCACGCCACAGCCACCGGAGTCGCCACCGGC 1417397
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CCGAACTCGGGAATGGGTACCAGCGTGGCCGACATACCGACGCTGCTGGCGCATTACGGC 1417454
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Utah
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   E: Trask, Britt
P.O. Box 2550
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 --AACGGCATTGTTCACCTCAACGACAGCGGTACC 1417211
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  USA
                                                                                                                                                                                                                         435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -GCCGCCCTCGAGCAGTATCTGGGCAGCGGGCACGCCGTGATCGTC 1417349
                                                                                                                                                                                                                                                                    US/08/470,179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              and
                                                                                                                        2601
                                                                                                                                                                  Ħ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -TCCGAGCGCCATCATCAAAGTGGCCCAGTCG 1417571
                                                                                                                                                                                                                                                                                                                      Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Species
                                                                                                                                                                                                                                                                                                                      #1.30
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ä
```

```
US-08-245-511-3
                                                                                                                                                                                                                                                                                                                                                                 RESULT 33
                                                                                                                                                                                                                                                                                                                                                                                                   맑
                                                                                                                                                                                                                                                                                                                                                                                                                              ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x US-08-470-179-93 (1-423)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Best Local S
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-470-179-93
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                               sequence 3, Application US/08245511
Patent No. 5928900
                                                                                                                                                                                                                                                                                                 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HYPOTHETICAL: NO ANTI-SENSE: NO ORIGINAL SOURCE: ORGANISM: Shig
                                                                                                                                                            APPLICANT: Masure, H Robert
APPLICANT: Pearce, Barbara J
APPLICANT: Tuomanen, Elaine
TITLE OF INVENTION: BACTERIAL EXPORTED PROTEINS AND
TITLE OF INVENTION: ACELULAR VACCINES BASED THEREON
NUMBER OF SEQUENCES: 58
CORRESPONDENCE ADDRESS:
ADDRESSEE: Klauber & Jackson
               COMPUTER READABLE FORM:
MEDIDM TYPE: Ploppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     MOLECULE TYPE: other nucleic DESCRIPTION: /desc = "gyrA HYPOTHETICAL: NO
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       No.:
                                                                                                                                                                                                                                                                                                                                                                                                     379
                                                                                                                                                                                                                                                                                                                                                                                                                                    174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     154
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     259
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     199
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    125
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 134 ValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValValSer 153
                                                                                                             CITY: Hackensack
STATE: New Jersey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     88
                                                                                                                                                 STREET:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 34 TACGCCATGAACGTACTAGGCAATGACTGGAACAAAGCCTATAAAAAATCTGCC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TOPOLOGY: not relevant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: nucleic acid
STRANDEDNESS: double
                                                                                                 COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                 AACCTGCTGGTGAACGGT 396
                                                                                                                                                                                                                                                                                                                                                                                                                              SerValLeuValAspGly 179
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGly 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyHisAsnAsnLeuGly----- 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTTATGACACGATCGTCCGTTTGGCGCAGCCATTCTCGCTGCGTTACATGCTGGTAGAC 1.98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                MetHisGluThrValIleAsnGlnMetProProGlnAlaAlaValIleLeuLeuThrAsp 124
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CGTGTCGTTGGTGAC-----GTAATCGGTAAATACCATCCCCATGGTGACTCG---GCG 1.38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ThrileLysSerAspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLys :04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TyrSerVallleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsn 84
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATCCGTCTGGCGAAAATTGCCCATGAACTGATGGCCGATCTCGAAAAAAGAGACGGTCGAT 318
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGTCAGGGTÄÄCTTCGGTTCCATCGACGGCGACTCTGCGGCGGCAATGCGTTATACGGAA 258
                                                                                    07601
                                                                                                                                                411 Hackensack Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   423 base pairs
                                                                                                   USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Shigella dysenteriae
PatentIn Release #1.0, Version #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40.48%
19.84%
6.88%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   gene
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    segment"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 423
25
26
26
16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   87
```

```
δ
Ś
                           밁
                                                                                   밁
                                                                                                              S
                                                                                                                                            밁
                                                                                                                                                                     8
                                                                                                                                                                                                    밁
                                                                                                                                                                                                                              δ
                                                                                                                                                                                                                                                            닭
                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x US-08-245-511-3 (1-960)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-08-245-511-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELEX: 133521
INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 960 base Type
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            IMMEDIATE
CLONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ORIGINAL SOURCE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/116,541
FILING DATE: 01-SEP-1994
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               HYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               MOLECULE TYPE: DNA (genomic)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TELECOMMUNICATION INFORMATION:
TELEPHONE: 201 487-5800
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CURRENT APPLICATION DATA:
                              597
                                                                                                                                                                                                                                                                                                                      321
                                                                                                                                                                                                                                                                                                                                                                              261 AACTTCGACTTCCGACCAGACTATTTCTCGTAAGGCTCAGGAAGCTTGGTTAGCGATTCA 320
                                                                                                                                            501
                                                                                                                                                                                                      441
                                                                                                                                                                                                                                                            381 GTCTAATGGGAACTATGGAATGCAGACAGCAGCTCAAAACTACTATGGTAAAGACCTCAA 440
 109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NAME/KEY:
LOCATION:
                                                                                                                                                                         62
                                                                                                                                                                                                                                   47
                                                                                                                                                                                                                                                                                           46
                                                                                                                                                                                                                                                                                                                                                   29
                                                                                                                                                                                                                                                                                                                                                                                                           13 SerTyrAsnTyrLeuValAspTyr-----SerGlySerMetMetMetLysHis 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Jackson Esq., David A. REGISTRATION NUMBER: 26,742 REFERENCE/DOCKET NUMBER: 600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/0 FILING DATE: 18-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          STRAIN:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               STRANDEDNESS: both TOPOLOGY: unknown
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                                                                                   TAATTTAAGTTTACCTCAGTTAGCCTTGCTGGCTGGAATGCCTCAGGCACCAAACCAATA
                                                                                                              aValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu-------
                                                                                                                                         TGACCCCTATTCA-----
                                                                                                                                                                        eAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAl 82
                                                                                                                                                                                                                                                                                                                    ValAlaValArgGlu-ProLysIleGluLeuAlaLysGluAlaIleLeuLysIle-----
                            GAAAGCAGTCAATACACCAATTACTGATGGGCTACAAAGTCTCAAATCAGCAAGTAATTA
                                                                                    CCGAAACTTGGTCTTATCTGAAATGAAAAATCAAGGCTACATCTCTGCTGAACAGTATGA 596
                                                                                                                                                                                                                              -AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeu-----TyrThrPh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            E SOURCE:
SPRU42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          R6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Streptococcus
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1..960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    g
                                                    ThrProValGlyAspGlyIleLysMetHisGluThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    0.503
77.00
37.24%
20.08%
6.88%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US/08/245,511
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ٠.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 600-1-069 CIP
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Indels:
 -ValIleAsnGlnMetProProGlnAlaAl 118
                                                                                                                                            -----CATCCAGAAGCAGCCCAAGACCG 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    960
48
41
75
75
                            656
                                                         108
                                                                                                                                                                                                      500
                                                                                                                                                                                                                                 62
                                                                                                                                                                                                                                                                                                                                                   46
                                                                                                                96
                                                                                                                                                                                                                                                                                         46
```

```
RESULT 34
US-08-600-993A-3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                bequence 3, Application US/08600993A
Patent No. 5981229
                                                                                            INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 960 base pairs
TYPE: nucleic acid
TYPE: nucleic both
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Pearce, Barbara J
APPLICANT: Tuomanen, Elaine
TITLE OF INVENTION: BACTERIAL EXPORTED
TITLE OF INVENTION: ACELLULAR VACCINES
NUMBER OF SEQUENCES: 59
CORRESPONDENCE ADDRESS:
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                        FILING DATE: 01-SEP-1994
ATTORNEY/AGENT INFORMATION:
NAME: Jackson Esq., David A.
REGISTRATION NUMBER: 26,742
REFERENCE/DOCKET NUMBER: 600-1-069
TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                  CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/245,511
FILING DATE: 18-MAY-1994
                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE: PatentIn Release #1.0, Version CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              COMPUTER READABLE FORM: MEDIUM TYPE: Floppy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                            PRIOR
                          ORIGINAL SOURCE:
                                       ANTI-SENSE: NO
                                                              TOPOLOGY: un
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                897
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             777
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 717
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         657
                                                   AYPOTHETICAL:
                                                                                                                                                                                                                                                                                                                                                                                                                                              MEDIUM TYPE: Floppy disk
COMPUTER: ISM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                            CLASSIFICATION: 435
RIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                     TELEPHONE: 201 343-1684
                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: US/
FILING DATE: 1-MAR-1996
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COUNTRY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CITY: Hackensack
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ADDRESSEE:
STRAIN:
             ORGANISM:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        uAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaVal 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 sValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLe 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ACATCTGTGGGATATTTACAATACAGACGAATACGTTGCCTATCCAGACGATGAATTGCA 836
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     aValIleLeuLeuThrAspGly------HisAsnAsnLeuGlyMetAsnProValGl 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCATCAGTCAAGTAATGTTTCCTTCGGAATT----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      AGTCGCTTCTACCATTGTTGATGTTTCTAACGGTAAAGTCATTGCCCCAGCTAGGAGCACG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CTATAACCTACTCACAACTGGGATGGATGTCTACACAAATGTAGACCAAGAAGCTCAAAA 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             07601
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      New Jersey
                                                                                                                                                                    133521
 ж
6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  411 Hackensack Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Masure, H Robert
Pearce, Barbara J
                                                                                unknown
           Streptococcus
                                                                                                                                                                                              201 487-5800
                                                       ĕ
                                                                 DNA (genomic)
                                                                                                                                                                                                                                                                                               US 08/116,541
                                                                                                                                                                                                                                                                                                                                                                                                         US/08/600,993A
             pneumoniae
                                                                                                                                                                                                                           SD
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PROTEINS AND
BASED THEREON
                                                                                                                                                                                                                                                                                                                                                                                                                                        #1.25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AACCAAGCAGTA 939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                    밁
                                                                                                                                                                                                             9
                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     벍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                     Ş
```

```
US-10-034-500-2 (1-218) x US-08-600-993A-3 (1-960)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-600-993A-3
                                                                                                         RESULT 35
US-08-961-083-1
                                                                    Sequence 1, Application US/08961083 Patent No. 6159469
                GENERAL INFORMATION:
APPLICANT: Choi et.
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             IMMEDIATE SOURCE:
CLONE: SPRU42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FEATURE:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 321
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        441 TAATTTAAGTTTACCTCAGTTAGCCTTGCTGGCTGGAATGCCTCAGGCACCAAACCAATA 500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  261 AACTTCGACTTCCGACCAGACTATTTCTCGTAAGGCTCAGGAAGCTTGGTTAGCGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NAME/KEY:
LOCATION:
                                                                                                                                                               897
                                                                                                                                                                                             170 uAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAspProAlaVal 188
                                                                                                                                                                                                                                    837
                                                                                                                                                                                                                                                                                                          777
                                                                                                                                                                                                                                                                                                                                          135
                                                                                                                                                                                                                                                                                                                                                                             717
                                                                                                                                                                                                                                                                                                                                                                                                                118
                                                                                                                                                                                                                                                                                                                                                                                                                                                   657
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        597
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     501
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            381 GTCTAATGGGAACTATGGAATGCAGACAGCAGCTCAAAACTACTATGGTAAAGACCTCAA 440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    29
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerTyrAsnTyrLeuValAspTyr-------SerGlySerMetMetLysHis 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CCGAAACTTGGTCTTATCTGAAATGAAAAATCAAGGCTACATCTCTGCTGAACAGTATGA 596
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGACCCCTATTCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ValAlaValArgGlu-ProLysIleGluLeuAlaLysGluAlaIleLeuLysIle-----
                                                                                                                                                                                                                                                                 sValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLe 170
                                                                                                                                                                                                                                                                                                                                                                                                            aVallleLeuLeuThrAspGly------HisAsnAsnLeuGlyMetAsnProValGl 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAAAGCAGTCAATACACCAATTACTGATGGGCTACAAAGTCTCAAATCAGCAAGTAATTA 656
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              aValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   eAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAl 82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeu-----TyrThrPh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CCATCAGTCAAGTAATGTTTCCTTCGGAATT---
                                                                                                                                                                                                                                                                                                                                        uGluValLysSerIleTyrGlnThrAsnProAsnValCysPhe-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                  AGTCGCTTCTACCATTGTTGATGTTTCTAACGGTAAAGTCATTGCCCAGCTAGGAGCACG
                                                                                                                                                                                                                                                                                                      ACATCTGTGGGATATTTACAATACAGACGAATACGTTGCCTATCCAGACGATGAATTGCA 836
                                                                                                                                                                                                                                                                                                                                                                             CTATAACCTACTCACAACTGGGATGGATGTCTACACAAATGTAGACCAAGAAGCTCAAAA 776
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ThrProValGlyAspGlyIleLysMetHisGluThr------ 108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CDS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1..960
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.503
77.00
37.24%
20.08%
6.88%
                  al.Streptococcus pneumoniae Antigens and Vaccines
 452
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----CATCCAGAAGCAĞCCCAAGACCG 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     960
48
41
75
75
                                                                                                                                                                   AACCAAGCAGTA
                                                                                                                                                                                                                                                                                                                                               ----Hi
                                                                                                                                                                   939
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          46
                                                                                                                                                                                                                                         968
```

```
ş
                                 밁
                                                            5
                                                                                            밁
                                                                                                                             5
                                                                                                                                                                      밁
                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                        5
                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                         á
                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             श
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               US-10-034-500-2 (1-218) x US-08-961-083-1 (1-1999)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-08-961-083-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATTORNAY/AGENT INFORMATION:
NAME: Brookes, A. Anders
REGISTRATION NUMBER: 36,373
REFERENCE/DOCKET NUMBER: PB340P2
TELECOMMUNICATION INFORMATION:
TELEPHONE: (301) 309-8504
TELEPAX: (301) 309-8512
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 1999 base pairs
TYPE: nucleic acid
STRANDEDNESS: double
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
COMPUTER: HP Vectra
OPERATING SYSTEM: MS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SOPTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/961,083
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                          370
                              586 GAAAGCAGTCAATACACCAATTACTGATGGACTACAAAGTCTCAAATCAGCAAGTAATTA 645
                                                                                                     526
                                                                                                                                                                      490
                                                                                                                                                                                                                                          430
                                                                                                                                                                                                                                                                                                                                                                             310
                                                                                                                                                                                                                                                                                                                                                                                                                                           250 AACTTCGACTTCCGACCAGACTATTTCTCGTAAGGCTCAGGAAGCTTGGTTAGCGATTCA 309
                                                                                                                                     82
                                                                                                                                                                                                                                                                        47
                                                                                                                                                                                                                                                                                                                                           40
                                                                                                                                                                                                                                                                                                                                                                                                                                                                13 SerTyrAsnTyrLeuValAspTyr------SerGlySerMetMetLysHis 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ADDRESSEE: Human Genome Sciences, Inc.
STREET: 9410 Key West Avenue
CITY: Rockville
STATE: Maryland
                                                                                                                                                                                                    62 eAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAl 82
                                                                                                                                                                                                                                                                                                                                                                                                      29 ValalaValargGlu-ProLysIleGluLeuAlaLysGluAlaIleLeuLysIle---- 46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COUNTRY: U
                                                                                                 CCGAAACTTGGTCTTATCTGAAATGAAAAATCAAGGCTACATCTCTGCTGAACAGTATGA 585
                                                                                                                               aValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu--------
-----VallleAsnGlnMetProProGlnAlaAl 118
                                                            ------ThrProValGlyAspGlyIleLysMetHisGluThr------ 108
                                                                                                                                                                   TAATTTAAGTTTACCTCAGTTAGCCTTGCTGGCTGGAATGCCTCAGGCACCAAACCAATA 489
                                                                                                                                                                                                                                                                        -AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeu-----TyrThrPh 62
                                                                                                                                                                                                                                                                                                          GTCTAATGGGAACTATGGAATGCAGACAGCAGCTCAAAACTACTATGGTAAAGACCTCAA 429
                                                                                                                                                                                                                                                                                                                                          4.6
                                                                                                                                                                                                                                                                                                                                                                        GTTAGAACAAAAAGCAACCAAGCAAGAAATCTTGACCTACTATAAAATAAGGTCTACAT 569
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 HP Vectra 486/33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1.66
77.00
37.24%
20.08%
6.88%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MSDOS version 6.2
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3.50 inch, 1.4Mb storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Length:
Matches:
                                                                                                                                   98
```

	NAME/KEY: CDS LOCATION: 12049	•• ••
	TURE:	٠
el 38	loning 12 Soluble PBP 1A del 3	
	EDIATE SOURC	٠. ٠
Ō	ORGANISM: Streptococcus pneumoniae	
	SOURCE:	•. •
	MOLECITE TYPE: DNA (genomic)	. ~.
	DEDNESS:	•-
	TYPE: nucleic acid	٠. ٠.
	CHARACTERISTICS	٠.
	V FOR SEQ	
	TELEPHONE: (212) 819-8783	
	ATION INFORMATION:	٠
15.1	TRATION NUMBER: 35,372	
	NAME: Sterner, Richard J.	
	FILING DATE: 24-NOV-1994	•. •
	PRIOR APPLICATION DATA:  APPLICATION NUMBER: SE 9404072-2	
	FILING DATE: 01-JUL-1994	
	A: N	
	CLASSIFICATION: 435	
	APPLICATION NUMBER: US/08/481,435	٠.
VEIBION #1.30	ATA:	
11.00 #1 3	SYSTEM: PC-DOS/MS-DOS	٠.
	IBM PC compatible	٠. ٠.
	COMPUTER READABLE FORM:	٠.
	New York	
00	CITY: New York	
	White & Case	••
	NUMBER OF SEQUENCES: 42 CORRESPONDENCE ADDRESS:	٠. ٠.
Polypeptides	OF INVENTION: No. 6027906el	•••
	APPLICANT: Balganesh, Tanjore S APPLICANT: Town. Christine	
	GENERAL INFORMATION:	 G
	36 481-435 ence 5,	RESULT US-08-4 ; Seque
·AACCAAGCAGTA 928	CAGTCAAGTAATGTTTCCTTCGGAAT	D <sub>D</sub>
GlnLeuLeuGlnAsnProAlaVal		Ś
GGTAAAGTCATTGCCCAGCTAGGAGCACG 885	826 AGTCGCTTCTACCATTGTTGATGTTTCTAACGGTAAAGTCATTGCCCAGCTAGGAGCACG	ర్జ
LysAlaIleIleAspGlnIleValAlaLe 170	150 sValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLe	Ş
TACGTTGCCTATCCAGACGATGAATTGCA 825	766 ACATCTGTGGGATATTTACAATACAGACGAATACGTTGCCTATCCAGACGATGAATTGCA	ర్జ
AsnValCysPheHi 150	lLysSerIleTyrGlnThrAs	Ş
:::    ::: TACACAAATGTAGACCAAGAAGCTCAAAA 765	706 CTATAACCTACTACACAACTGGGATGGATGTCTACACAAATGTAGACCAAGAAGCTCAAAA	В
HisAsnAsnLeuGlyMetAsnProValGl 135	118 aValIleLeuLeuThrAspGlyHisAsnA	8
GTCATCAATCAAGTTGAAGAAGAAACAGG 705	646 CCCTGCTTACATGGATAATTACCTCAAGGAAGTCATCAATCA	g

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ; NAME/KEY:
; LOCATION:
US-08-481-435-5
                                                                                                                                                                 밁
                                                                                                                                                                                          Ś
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-034-500-2 (1-218) x US-08-481-435-5 (1-2049)
                                                                                                                   US-08-961-527-145/c
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                     Sequence 145, Application US/08961527 Patent No. 6420135
          GENERAL INFORMATION:
APPLICANT: Charles Kunsch
TITLE OF INVENTION: Strept
NUMBER OF SEQUENCES: 391
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FEATURE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              573
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         537
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    477
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            417
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       357
                                                                                                                                                                                                                                                                                      813
                                                                                                                                                                                                                                                                                                                                                                               118
                                                                                                                                                                                                                                                                                                                                                                                                            693
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                297 AACTTÇGACTTCCGACCAGACTATTTCTCGTAAGGCTCAGGAAGCTTGGTTAGCGATTCA 356
                                                                                                                                                                 933 CCATCAGTCAAGTAATGTTTCCTTCGGAATT-----
                                                                                                                                                                                                                                                        150
                                                                                                                                                                                                                                                                                                                                                 753
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  97
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 29 ValAlaValArgGlu-ProLysIleGluLeuAlaLysGluAlaIleLeuLysIle----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              13
 ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerTyrAsnTyrLeuValAspTyr------SerGlySerMetMetMetLysHis
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        aValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu---------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTCTAATGGGAACTATGGAATGCAGACAGCAGCTCAAAACTACTATGGTAAAGACCTCAA 476
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       aVallleLeuLeuThrAspGly------HisAsnAsnLeuGlyMetAsnProValGl 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GAAAGCAGTCAATACACCAATTACTGATGGGCTACAAAGTCTCAAATCAGCAAGTAATTA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGACCCCTATTCA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             eAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAl 82
                                                                                                                                                                                            uAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaVal 188
                                                                                                                                                                                                                                                       sValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLe 170
                                                                                                                                                                                                                                                                                      ACATCTGTGGGATÄTTTÄCAATÄCAGACGAATACGTTGCCTATCCAGACGATGAATTGCA 872
                                                                                                                                                                                                                                                                                                                uGluValLysSerIleTyrGlnThrAsnProAsnValCysPhe------Hi 150
                                                                                                                                                                                                                                                                                                                                               CTATAACCTACTCACAACTGGGATGGATGTCTACACAAATGTAGACCAAGAAGCTCAAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CCGAAACTTGGTCTTATCTGAAATGAAAAATCAAGGCTACATCTCTGCTGAACAGTATGA 632
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeu-----TyrThrPh
                                                                                                                                                                                                                           AGTCGCTTCTACCATTGTTGATGTTTCTAACGGTAAAGTCATTGCCCAGCTAGGAGCACG
                                                                                                                                                                                                                                                                                                                                                                                                          mat_peptide
1..2046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ----ThrProValGlyAspGlyIleLysMetHisGluThr------
Human Genome Sciences,
                                                                                                                                                                                                                                                                                                                                                                                                                                   1.73
77.00
37.24%
20.08%
6.88%
                             Streptococcus: 391
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Conservative:
                                           pneumoniae
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----CATCCAGAAGCAGCCCAAGACCG 572
                                           Polynucleotides
                                                                                                                                                                -AACCAAGCAGTA 975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       2049
48
41
75
75
                                           and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   46
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               28
                                                                                                                                                                                                                                                                                                                                                 812
                                                                                                                                                                                                                                                                                                                                                                                                          752
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           96
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         46
                                           Sequences
                                                                                                                                                                                                                            932
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                          Ş
                                                           밁
                                                                                       á
                                                                                                                     닭
                                                                                                                                                S
                                                                                                                                                                                 밁
                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x US-08-961-527-145 (1-10711)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-08-961-527-145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TELEFAX: (301) 309-85
INFORMATION FOR SEQ ID NO:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            COMPUTER: HP Vectra 486/33
OPERATING SYSTEM: MSDOS version 6.2
SOFTWARE: ASCII Text
CURRENT APPLICATION DATA:
APPLICATION NIMBER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              . No. :
                                                                                                                                                                                 9278
                                                                                                                                                                                                                                                                                                       9398
                                                                                                                                                                                                                                                                                                                                                                  9458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Brookes, A. Anders
                                                                                                                     9242
                                                                                                                                                                                                                                                                                                                                                                                                                         9518 AACTTCGACTACCAACCAGACTATTCTCGTAAGGCTCAGGAAGCTTGGTTAGCGATTCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SEQUENCE CHARACTERISTICS:
LENGTH: 10711 base pairs
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR APPLICATION DATA:
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        COMPUTER READABLE FORM: MEDIUM TYPE: Diskette,
                                                           9182
                                                                                                                                                                                                                                            9338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TELECOMMUNICATION INFORMATION:
109
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 STREET:
CITY: R
                                                                                                                                                                                                                                                                          47
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STATE: Maryland
COUNTRY: USA
ZIP: 20850
                                                                                                                                                                                                                                                                                                                                    46
                                                                                                                                                                                                                                                                                                                                                                                                                                                     13 SerTyrAsnTyrLeuValAspTyr------SerGlySerMetMetLysHis 28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: CLASSIFICATION:
                                                                                                                                                   82
                                                                                                                                                                                                                                                                                                                                                                                             29 ValAlaValArgGlu-ProLysIleGluLeuAlaLysGluAlaIleLeuLysIle----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      STRANDEDNESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            REGISTRATION NUMBER: 36,373
REFERENCE/DOCKET NUMBER: PB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TOPOLOGY:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEPHONE:
                                                                                                                                              aValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeu---------
                                                                                                                                                                                                                                           TAATTTAAGTTTACCTCAGTTAGCCTTGCTGGCTGGAATGCCTCAGGCACCAAACCAATA 9279
                                                          GARAGCAGTCAATÁCÁCCÁATTACTGÁTGGÁCTACAAAGTCTCAAATCAGCAAGTAATTA 9123
                                                                                                                     CCGAAACTTGGTCTTATCTGAAATGAAAAATCAAGGCTACATCTCTGCTGAACAGTATGA 9183
                                                                                                                                                                                 TGACCCCTATTCA
                                                                                                                                                                                                           eAlaProTyrSerValIleIleProGlnGlySerTrpAsnSerCysValAlaGluCysAl 82
                                                                                                                                                                                                                                                                       -AsnAlaAlaMetProLysMetSerTyrGlnGlyGlyLeu-----TyrThrPh
                                                                                                                                                                                                                                                                                                        GTCTAATGGGAACTATGGAATGCAGACAGCAGCTCAAAACTACTATGGTAAAGACCTCAA 9339
                                                                                                                                                                                                                                                                                                                                                                  Rockville
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9410 Key
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (301) 309-8504
                                                                                      ----ThrProValGlyAspGlyIleLysMetHisGluThr-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        double
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                309-8512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    25.6
77.00
37.24%
20.08%
6.88%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   West Avenue
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                145:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PB340P1
                            -----ValileAsnGlnMetProProGlnAlaAl 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1.4Mb
                                                                                                                                                                                  -CATCCAGAAGCAGCCCAAGACCG 9243
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   10711
48
41
75
75
                                                                                                                                                                                                                                                                          62
                                                                                                                                                                                                                                                                                                                                                                                                  46
                                                                                                                                                                                                                                                                                                                                       46
                                                                                                                                                      96
```

```
US-08-936-165A-199
; Sequence 199, Application US/08936165A
; Patent No. 6348582
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                     Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       र्
  Pred. No.:
                                                             US-08-936-165A-199
                                                                                                                                                                                                                                      COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette

COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOPTWARE: FastSEQ for Windows Version 2.0
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/936,165A
FILING DATE: 24-SEP-1997
CLASSIFICATION: 536
PRIOR APPLICATION DATA:
APPLICATION DATA:
APPLICATION DATA:
APPLICATION UMBER: 60/027,032
FILING DATE: 24-SEP-1996
ATTORNEY/AGENT INFORMATION:
NAME: Gimmi, Edward R
REGISTRATION NUMBER: 38,891
REGISTRATION NUMBER: 950549
TELEPHONE: 610-270-4478
TELEPHONE: 610-270-4478
                                                                                                                                  INFORMATION FOR SEQ ID NO: 199:
SEQUENCE CHARACTERISTICS:
LENGTH: 2178 base pairs
TYPE: nuclaic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              9062 CTATAACCTACTACAACTGGGATGGATGTCTACACAAATGTAGACCAAGAAGCTCAAAA 9003
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER OF SEQUENCES: 534

CORRESPONDENCE ADDRESS:

ADDRESSE: SmithKline Beecham Corporation
STREET: 709 Swedeland Road
CITY: King of Prussia
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8942 AGTCGCTTCTACCATTGTTGATGTTTCTAACGGTAAAGTCATTGCCCAGCTAGGAGCACG 8883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   8882 CCATCAGTCAAGTAATGTTTCCTTCGGAATT-----AACCAAGCAGTA 8840
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 9002 ACATCTGTGGGATÄTTTÄCAATÄCÄGACGAATACGTTGCCTATCCAGACGATGAATTGCA 8943
                                                                                 TOPOLOGY: 1: MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TITLE OF INVENTION: No. 6348582el Prokaryotic Polynucleotides, TITLE OF INVENTION: Polypeptides and Their Uses NUMBER OF SEQUENCES: 534
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  150 sValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLe 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    118 aValIleLeuLeuThrAspGly------HisAsnAsnLeuGlyMetAsnProValGl 135
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       170 uAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaVal 188
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        135 uGluValLysSerIleTyrGlnThrAsnProAsnValCysPhe------Hi 150
                                                                                           TYPE:
STRANDEDNESS: BILL
STRANDEDNESS: BILL
TOTAGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Reichard, Richard
Rosenberg, Martin
Ward, Judith
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nicholas, Richard
Pratt, Julie
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Lonetto, Michael
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Burnham, Martin
Hodgson, John
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Knowles, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Black, Michael
                                                                                                                   single
                                                                                 Genomic DNA
  2.25
Length:
  2178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       •
```

US-	용 성	<u> </u>	음 성	음 성	B 8	음 성	용 성	B 8	용 성	음 성	용 성	Score Perce Best Query DB:
SSULT 39 5-09-193-562D-27 Sequence 27, Application US/09193562D Sequence 27, Application US/09193562D Patent No. 6309857 GENERAL INFORMATION: APPLICANT: Pauli, Benedicht U. TITLE OF INVENTION: Nucleotide Sequences Encoding Mammalian Calcium TITLE OF INVENTION: Nactivated Chloride Channel-Adhesion Molecules FILE REFERENCE: 18617.0052 CURRENT APPLICATION NUMBER: US/09/193,562D CURRENT FILING DATE: 1998-11-17 PRIOR APPLICATION NUMBER: US/60/065,922 PRIOR FILLING DATE: 1997-11-17 PRIOR FILLING DATE: 1997-11-17 SEQ ID NO 27 LENGTH: 3007 TYPE: DNA ORGANISM: Homo sapiens 5-09-193-562D-27	186 ProAlaValCysGlinGlu 191	168ValAlaLeuAsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsn 185     ::              1745 GAAGATACGTATTTAGATCATCAAAGTGTTTTAGTTCAGGGTATAAAGCACGTATGGATT 1804	152 ValSerpheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIle 167 :::     :::    :::        ::: 1685 ATCATTTTAAAAAATGTTGCAGACGAACATCGTGACATTGTTCAAGTTTGTGATTCGCAT 1744	143ThrasnProAsnValCysPheHis	129 LeuGlyMetAsnProValGluGluValLysSerIleTyrGln	109 VallleAsnGlnMetProProGlnAlaAlaVallleLeuLeuThrAspGlyHisAsnAsn 128     :: 	89 AspLeuGluIlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThr 108	69 IleProGlnGlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSer 88	49 AlaMetProLysMetSerTyrGlnGlyGlyLeuTyrThrPheAlaProTyrSerVallle 68 ::::::           1427 GATGCACTTGCCAFAACTGACACCAATGTATTGTATGGTTTTCCTAAATTT 1477	35	17 LeuValAspTyrSerGlySerMetMetMetLysHisValAl    :::::        ::   ::: ::::: 1307 CTAATAGAAAGGAGCCATTCAATCATGGTGGCATATTTAAA	Score: 76.50 Matches: 47  Percent Similarity: 37.38% Conservative: 30  Best Local Similarity: 22.82% Mismatches: 64  Query Match: 6.84% Indels: 65  DB: 4 Gaps: 9  IIS-10-034-500-2 (1-218) x IIS-08-336-199 (1-2178)

Alignment Scores:

47

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                               RESULT 40
US-09-245-248B-54
                                                                                                                                                                                                                                                                                                                                                                     멍
                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          당
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-09-193-562D-27 (1-3007)
                                                                                                                                                                                                                                                                                Sequence 54, Application US/09245248B Patent No. 6395472
                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
                                                                                                                       APPLICANT:
            APPLICANT: Desai, Suresh
APPLICANT: Mushahwar, Isa
TITLE OF INVENTION: METHODS OF UTILIZING THE TT
FILE REFERENCE: 6461.US.O1
CURRENT APPLICATION NUMBER: US/09/245,248B
CURRENT FILING DATE: 1999-02-05
                                                                                                                                                                                           APPLICANT:
                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                             APPLICANT:
NUMBER OF SEQ ID NOS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1385
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1205
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1145
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1085
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1037
                                                                                                                                                                                                                                                                                                                                                                     1547
                                                                                                                                                                                                                                                                                                                                                                                                                                        1496 CAGCGCTCCATCCAGCTTGAGAGTAAGGGATTAACCCTCCAG-----AACAGCCAG 1546
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1436
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1325 CAAAGTGGTGCCATCATCCACACAGTCGCTTTTGGGGCCCTCTGCAGCTCAAGAACTAGAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              No.:
                                                                                                                                                                                                                                                                                                                                                                                                       197
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               139
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    129
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             159
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              91
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 78
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       38
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSerCys 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CAGAACAATGGCCTCÁTTGÁTGCTTTTGGGGCCCCTTTCATCÁGGÁAATGGAGCTGTCTCT 1495
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GAGCTGTCCAAAATGACAGGAGGTTTACAGACATATGCT-----TCAGATCAAGTT 1435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATTGTGCTGCTGACGGATGGGGAAGACAACACTATAAGTGGGTGCTTTAACGAGGTCAAA 1324
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ValileLeuLeuThrAspGlyHisAsnAsn-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          AspGlyIleLysMetHisGluThrValIleAsnGlnMetProProGln-----AlaAla 118
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GACAGGGACACACTCGCCAAAAGATTACCTGCAGCAGCTCCAGGAGGGACGTCCATCTGC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----GluIlePheGlyArgLeu-------ThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTGACATTTGACAGTGCTGCCCATGTACAAAGTGAACTCATACAGATAAACAGTGGCAGT 1144
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ValAlaGluCysAlaValAsnThrIleLysSerAspLeu--------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CAGCTTTTCCTGCTGCAG-----ACAGTTGAGCTGGGGTCCTGGGTTGGGATG 1084
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CTTGACAAATCTGGAAGCATGGCGACTGGTAACCGCCTCAATCGACTGAATCAAGCAGGC 1036
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGlnGly 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSerGlySerValLeuValAsp
:::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              SerIleTyrGlnThrAsnProAsnValCysPheHisValValSerPheAlaAspAspAla
                                                                                                                                                                                                                                                                                                                                                                                                     PheCysGlnGluGlnIleLeuValThrGluGluVal 208
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AGCGGGCTTCGATCGGCATTTACTGTGATTAGGAAGAAATATCCAACTGATGGATCTGAA 1264
                                                                                                                                                                                                                                                                                                                                                                     TGGATGAATGGCACAGTGATCGTGGACAGCACCGTG 1582
                                                                                                                   Chalmers, Michelle
Simons, John
Birkenmeyer, Larry
Muerhoff, Scott
Pilot-Matias, Tami
                                                                                                                                                                                                           Abbott Laboratories
Leary, Thomas
Erker, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      --GlyLeuGlnLeuLeuGlnAsnProAlaValCysGlnGluPheValAsnSerVal 196
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  76.50
37.26%
19.81%
6.84%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              3.8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative:
                                                                      VIRUS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1204
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1384
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 90
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 158
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         128
```

```
Ş
                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                      Ś
   밁
                                                           밁
                                                                                        S
                                                                                                                        В
                                                                                                                                                    Ş
                                                                                                                                                                                      맑
                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                         В
                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x US-09-245-248B-54 (1-3839)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-09-245-248B-54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SOFTWARE:
SEQ ID NO 54
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LENGTH: 3839
TYPE: DNA
ORGANISM: Homo
                                                                                                                                                                                                                                                   1389
1599 AAACAAGAATCACCT
                                                                                                                                                                                                                                                                                                                                                                          1269 CCCCAGACAGACCTCTGTGACATGACACTCCTAACGATCTTTGCCTCTGCGGCGGATATG
                                                             1539 CAAGAAGCAACAAATGGAAACAATGTATGGGCAAACTACGTAAACAGCTGTAAATTTAAC 1598
                                                                                                                        1479 CATTTACCCTACTACAACACCACACAAACACAAGCACAATTTAAGAGATTTACAGAAAAAC 1538
                              141
                                                                                                                                                         112
                                                                                                                                                                                                                                                                                                                                                                                                       34
                                                                                                                                                                                                                    92
                                                                                                                                                                                                                                                                                72
                                                                                                                                                                                                                                                                                                                                          54 SerTyrGlnGlyGly-----LeuTyrThrPheAlaProTyrSerValIleIleProGln
                                                                                                                                                         GlnMetPro-----ProGlnAlaAlaValIleLeuIeuThrAspGly 125
                                                                                                                                                                                                                                                 TCCATGTTCAACGACTGCCTGAGTGTACTTCCTACTAACTTTACAGAAACATCA-----
                                                                                                                                                                                                                                                                              GlySerTrpAsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGlu 91
                                                                                                                                                                                                                                                                                                                                                                                                       ProLysIleGluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMet
                              TyrGlnThrAsnPro 145
                                                                                                                                                                                                                                                                                                             CAATATCCGTTCGGCTCACCACTAACTGACACTATAGTTGTGTCATTCCAAGTTCTGCAA
                                                                                       His-----AsnAsnLeuGlyMetAsnProValGluGluValLysSerIle 140
                                                                                                                                                                                                                 IlePheGlyArgLeuThrProValGlyAspGlyIleLysMetHisGluThrValIleAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5.65
76.50
38.40%
24.00%
6.84%
   1613
                                                                                                                                                                                      ----GGCAAAGGCGCACAATTACATGATAAAAATTATTAAC 1478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           4.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3839
30
18
54
23
                                                                                                                                                                                                                      111
                                                                                                                                                                                                                                                   1442
                                                                                                                                                                                                                                                                                                                1388
                                                                                                                                                                                                                                                                                                                                                                             1328
                                                                                                                                                                                                                                                                                                                                               71
                                                                                                                                                                                                                                                                                                                                                                                                          53
```

Search completed: April 8, 2003, 06:19:29
Job time: 910 secs

```
Minimum
Maximum
                                                                                                                                                                                                                                                                                                                                                                                                                                                -Q=/cgn2 1/USPTO_Bpool/US1034500/runat_02042003_092747_19820/app_query.fasta_1.391
-QB=-Published_Applications_NA -QFMT=fastap_SUFFIX=rnpb-MINMATCH=0.1
-LOOPCL=0 -LOOPEXT=0 -UNITS=bits -START=1 -END=-1 -MATRIX=blosum62
-TRANS=human40.cdi -LIST=45 -DCCALIGN=200 -THR_SCORE=pct -THR_MAX=100
-THR_MIN=0 -ALIGN=40 -MODE=LOCAL -OUTFMT=pto -NORM=ext -HEAPSIZE=500 -MINLEN=0
-MAXIEN=200000000 -USER=US10034500_@CGN 1 1 69 @runat_02042003_092747_19820
-NCPU=6 -ICPU=3 -NO_XLPXY -NO_MMAP -LARGEQUERY -NUEG_SCORES=0 -MAIT -LONGLOG-DEV_TIMEOUT=120 -WARN_TIMEOUT=30 -THREADS=1 -XGAPOF=10 -XGAPEXT=0.5 -FGAPOP=6
-FGAPEXT=7 -YGAPOP=10 -YGAPEXT=0.5 -DELOP=6 -DELEXT=7
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -MODEL=frame+_p2n.model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Total number of hits satisfying chosen parameters:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Searched:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Scoring table:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Run on:
                                                                                                                                                                                                                                                                                                                                                                                                        Database :
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Post-processing: Minimum Match 0%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Perfect score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         OM protein - nucleic search, using frame_plus_p2n model
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    DB seq length: 0
DB seq length: 2000000000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         April 8, 2003, 05:47:04; Search time 97 Seconds (without alignments) 1971.367 Million cell updates/sec
              10:
11:
12:
13:
14:
                                                                                                                                                     987654321
                                                                                                                                                                                                                                                                                                                                                                                                   Published_Applications_NA:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        593429 segs, 438583890 residues
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Xgapop 10.0 , Xgapext
Ygapop 10.0 , Ygapext
Fgapop 6.0 , Fgapext
Delop 6.0 , Delext
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 BLOSUM62
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1 AEVTASCTKRVESYNYLVDY.....
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2
1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Maximum Match 100%
Listing first 45 s
/cgn2_6/ptodata/1/pubpna/US07_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US06_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US07_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/PCTUS_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_NEW_PUB.seq:*
/cgn2_6/ptodata/1/pubpna/US08_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
/cgn2_6/ptodata/1/pubpna/US09_PUBCOMB.seq:*
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GenCore version 5.1.4 p5 4578 Copyright (c) 1993 - 2003 Compugen Ltd.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -DEV=xlh
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          summaries
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 7.0
7.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     .QEQILVTEEVVVLRGVNFAF 218
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1186858
```

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

## SUMMARIES

4.	ω	N	_	Result No.
91.5	91.5	91.5		Score
8.2	8.2	8.2	8.4	Query Match Length DB ID
3181	3169	3043	687	Length
. 12	9	12	10	BB
12 US-10-025-167-18	US-09-981-353-53	US-10-025-167-16	ω	
Sequence 18, Appl	Sequence 53, Appl	Sequence 16, Appl	Sequence 2433, Ap	Description

44	4.4	4 0 1	39	38	37	3 (J	ω 4.1	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	80	7	σ	ۍ.
91.5	٠,		1.	<u> </u>	_:	• :-	٠.		۲	۲.	1.	:	:	:-	:	:	:		:	۲.		:	۲.	:	:	Ľ	ŗ	ŗ	۲	:	1.	۲.	۲.	ŗ	1.	1.
8 8 8 							٠	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•	•		•	•	•	•	•	•	•
3265 3265	2 0	26	26	26	26	3 6	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
99	9 9	9 9	9	9	9 4	o c	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
10-176-747-25	-10-176-488-25 -10-176-492-25	75-740-2	-10-175-739-25	-10-174-588-25	74-582-25	-10-174-572-25	-10-173-700-25	-09-997-666-3	-09-997-428-37	-09-990-562-37	-09-990-438-37	-10-180-557-25	-10-180-552-25	-10-176-913-25	-10-176-757-2	-10-176-482-2	0-175-752-	-10-175-738-2	0-173-706-2	-10-063-502-6	-09-993-667-37	-10-175-737-25	-10-063-616-6	-10-176-758-25	-10-174-590-25	-09-997-653-37	-09-989-734-3	-09-993-687-37	9-991-181-37	-09-990-436-37	-09-989-730-37	-09-990-444-3	9-735-37	-10-063-547-6	-09-989-293A-3	9-992-59
equence 257, equence 257,	equence 257,	57,	equence 257,	equence 257,	57.	equence 257,	e 257,	378,	378,	378,	378,	257,	e 257,	equence 257,	257,	equence 257,	equence 257,	equence 257,	equence 257,	equence 69,	equence 378,	e 257,	equence 69,	equence 257,	equence 257,	equence 378,	equence 378,	equence 378,	nce 378,	equence 378,	equence 378,	equence 378,	nce 378,	equence 69,	equence 378,	78,
App App	App	App	App	App	Agg QGA	App	App	App	App	App	App	App	App	App	App	App	App	App	App	[dd	App	App	pp1	App	App	App	App	ďď	App	App	App	dď	App	1qq	App	App

## ALIGNMENTS

```
US-09-974-300-2433
; Sequence 2433, Application US/09974300
; Patent No. US20020146721A1
[GENERAL INFORMATION:
    APPLICANT: Berka, Randy M.
    APPLICANT: Clausen, Ib Groth
    TITLE OF INVENTION: Methods for Monitoring Multiple Gene
    TITLE OF INVENTION: Expression
    FILE REFERENCE: 10085.500-US
    CURRENT FILING DATE: 2001-10-05
    PRIOR PPLICATION NUMBER: US/09/974,300
    CURRENT FILING DATE: 2000-10-06
    PRIOR FILING DATE: 2000-10-06
    PRIOR FILING DATE: 2000-10-06
    PRIOR PPLICATION NUMBER: 60/279,526
    PRIOR FILING DATE: 2001-03-27
    NUMBER OF SEQ ID NOS: 8481
    SOFTWARE: FastSEQ for Windows Version 4.0
    SEQ ID NO 2433
    LENGTH: 687
    TYPE: DNA
    ORGANISM: Bacillus licheniformis
    US-09-974-300-2433
    Alignment Scores:
    One Conservative: 27
    Predd. No.:
    SOFTWARE: 0.00384
    Matches:
    One Conservative: 27
```

```
RESULT 2
US-10-025-167-16
                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  片
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x US-09-974-300-2433 (1-687)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Best Local Similarity:
                                                                                                                                                                                                                                                                                                                      Sequence 16, Application US/10025167 Patent No. US20020127693A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              490
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  430
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   113
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    238
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          178
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               124
                                                                                                                                                                                                                                                                                                                                                                                                                                637
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 191
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    604
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       171
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           151
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             131
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        370
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              298
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         95
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 58
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       50
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           75
                                 CORRESPONDENCE ADDRESS:
ADDRESSEE: Abbott Laboratories
STREET: 100 Abbott Park Road
                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                         NUMBER OF SEQUENCES:
                                                                                                                                             TITLE OF
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                              GluPheValAsnSerValPheCysGlnGluGlnIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGCAATCCGGTAAAAGTCGCAACAGAACTGCGCAAATCCAATGCGGTTGTC-----AAC 543
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          MetAsnProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHis 150
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CCGACCGGATGGACACCGATCGCAAACGCGCTGCAAGATGCAAAAAACGCGCTTGACCAG 429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ArgLeu-----ThrProValGlyAspGlyIleLysMetHisGluThrValIleAsnGln 112
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnSerCysValAlaGluCysAlaValAsnThrIleLysSerAspLeuGluIlePheGly 94
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GCAATCAGAGGGGTGTACGGCTTCCAAACGTATGAC-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetProLysMetSerTyrGlnGly-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GAGCTTGCCAAAAATGAAGCGTTCAGCTTTGGTTCCAAGCTTGAAAATGCAAACGTGCTC 237
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GluLeuAlaLysGluAlaIleLeuLysIle---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGCTTGATGCAAGCGGCAGCATGGCTAAAAAAGATCGGCGGGGTC-----TCAAAATAC 177
                                                                                                                                                                                                                                                                                                                                                                                                                                AATGACATCAAAAGAATTTTTACTCAGGAAGCAATT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AsnSerGlySerValLeuValAspGlyLeuGlnLeuLeuGlnAsnProAlaValCysGln 190
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTGATCGGCTTTGATTATGAAGGAGACTTCCACGGACAATTGACCAGTATCGCAGCAGCT 603
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ValValSerPheAlaAspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeu 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CTGGACAACAACGGGAAAAACGTCGTCTATCTGCTGACAGACGGTGAGGAAACATGCGGA 489
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   MetProProGlnAla-----AlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGly 130
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----GlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrp 74
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ATGAGAGTTTTCGGTTCAGAGGGAAACAATAAAAATTCCGGAAAAGTGCAGTCCTGCAAT 297
     STATE: IL
                      CITY: Abbott Park
                                                                                                                                           HAYDEN, MARK
KLASS, MICHAEL R.
ROBERTS-RAPP, LISA
RUSSELL, JOHN C.
STROUPE, STEPHEN D.
FINVENTION: REAGENTS AN
                                                                                                                                                                                                                                                  COHEN, MAURICE COLPITTS, TRACE FRIEDMAN, PAULA
                                                                                                                                                                                                                                                                                                     BILLING-MEDEL, PATRICIA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   21.70%
8.36%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GAGCAAAGCTTCCGCAATTCCTTAAACGGCATCGGA 369
                                                                                                                       STEPHEN D.
REAGENTS AND METHODS
USEFUL FOR DETECTING
                                                                                                            TRACT
                                                                                                                                                                                                                                                    PAULA N.
                                                                                                                                                                                                                                                                 TRACEY L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches:
                                                                                                                                                                                                                                                                                                       Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 202
                                                                                                                           FOR THE DISEASES OF THE GASTROINTESTINAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8 U 8
4 U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CAGGCAAAAACTAAA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AsnAlaAla 49
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ----- 333
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      636
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ; SEQUENCE DESCRIPTION: SEQ US-10-025-167-16
                    δ
                                                        밁
                                                                                      Ś
                                                                                                                           밁
                                                                                                                                                          Ş
                                                                                                                                                                                               В
                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      US-10-034-500-2 (1-218) x US-10-025-167-16 (1-3043)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TELEX: <Unknown>
INFORMATION FOR SEQ ID NO: 16:
                                                                                                                                                                                                                                                                                                                                          1022
                                                                                                                           1157 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1216
                                                                                                                                                                                                1109 GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1156
                                                                                                                                                                                                                                                                  1049 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1108
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 No.:
                                                                                                                                                             101
                      133
                                                                                                                                                                                                                                                                                                                                                                                                                968
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      941 GTTCTTĠATAAGTĊTĠĠAAĠĊATĠGGG---
                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                       77
                                                                                                                                                                                                                                                                                                                                                                             57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                               37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATTORNEY/AGENT INFORMATION:
NAME: Becker, Cheryl L.
REGISTRATION NUMBER: 35,441
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ZIP: 60064-3500
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             REFERENCE/DOCKET NUMBER: TELECOMMUNICATION INFORMATION: TELEPHONE: 847/935-1729
TELEFAX: 847/938-2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                     CysVal-----
CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                         GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                              -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG
                                                       CAACTCGATGGATCCGAAGTACTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1276
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 09/049,698
FILING DATE: «Unknown»
APPLICATION NUMBER: 08/828,856
FILING DATE: 31-MAR-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: US/10/025,167
FILING DATE: 19-Dec-2001
CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  LENGTH: 3043 base pairs
TYPE: nucleic acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TOPOLOGY: linear
                                                                                                                                                            ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                        --AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.0723
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ij
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
O
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  6068.US.P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                            ----ACTGTTGANANTGGATCCTGGGTGGGG 1048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         16:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3043
46
26
55
75
                                                                                                                                                                                                                                                                                                           -----AlaGlu 80
```

1021

967

5

```
APPLICANT: Lasek, Amy W.

APPLICANT: Jones, David A.

APPLICANT: Jones, David A.

FILE OF INVENTION: GENES EXPRESSED IN COLON CANCER

FILE REFERENCE: PA-0038 US

CURRENT APPLICATION NUMBER: US/09/981,353

CURRENT FILING DATE: 2001-10-11

NUMBER OF SEQ ID NOS: 194

SOFTWARB: PERL PROGRAM

SEQ ID NO 53

LENGTH: 3169

TYPE: DNA

ORGANISM: Homo sapiens

FEATURE:

NAME/KEY: misc feature

OTHER INFORMATION: Incyte ID NO. US20020160382A1 2771481CB1

US-09-981-353-53
                                                                                                                                                                                                                                                        ঠ
                                S
                                                                      밁
                                                                                                       δ
                                                                                                                                             밁
                                                                                                                                                                               S
                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-09-981-353-53 (1-3169)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-981-353-53
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Pred.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Sequence 53, Application US/09981353
Patent No. US20020160382A1
GENERAL INFORMATION:
1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1277
                                                                                                                                           1120 GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                                                                                                                                                    1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                              1033 -----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1448
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1388 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1447
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1328 GGAAGAĞCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1387
                                                                      1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Хо
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   153
                   116 Gln------AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                     979
                                                                                                                                                                                                                                                                                                                                                                                                                                            952 GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                   81
                                                                                                                                                                                                                                                          77
                                                                                                                                                                                                                                                                                                                                 57
                                                                                                                                                                                                                                                                                                                                                                                                   37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                        CysVal----
                                                                                                                                                                                                                                                                                                                                 GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerPheAla----
CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                               CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                     ----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAAAT 1453
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCCATTGTTCATTTATTGCTTTG 1327
                                                                                                           ---AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.077
91.50
35.64%
22.77%
8.18%
9
                                                                                                                                                                                                                                                                                            -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3169
46
26
55
75
                                                                                                                                                                                                                                                        ----AlaGlu 80
                                                                                                           115
                                                                                                                                                                                                                                                                                                                                                                   1032
                                                                                                                                                                                                                                                                                                                                                                                                     56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   155
```

```
멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ş
; SEQUENCE DESCRIPTION: SEQ ID NO: US-10-025-167-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-025-167-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                RESULT 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 18, Application US/10025167 Patent No. US20020127693A1 GENERAL INFORMATION:
                                                                                                                TELEX: <Unknown>
INFORMATION FOR SEQ ID NO: 18:
SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1339 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133 ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                        APPLICATION NUMBER: 09/049,698
FILING DATE: «Unknown»
APPLICATION NUMBER: 09/828,856
FILING DATE: 31-MAR-1997
ATTORNEY/AGENT INFORMATION:
NAME: Becker, Cheryl L.
REGISTRATION NUMBER: 35,441
REFERENCE/DOCKET NUMBER: 6068.US
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ZIP: 60064-3500
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ROBERTS RAPP, LISA
RUSSELL, JOHN C.
STROUPE, STEPHEN D.
TITLE OF INVENTION: REAGENTS AND METHODS
USBETUL FOR DETECTING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 51
CORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                         TELECOMMUNICATION INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT: BILLING-MEDEL, PATRICIA A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     STATE: IL
COUNTRY: USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ADDRESSEE: Abbott Laboratories STREET: 100 Abbott Park Road
                                      STRANDEDNESS: single TOPOLOGY: linear
                                                                          TYPE: nucleic acid
                                                                                                                                                                                                                                                                                                                                                                                                                                 CLASSIFICATION: <Unknown>
                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: US/10/025,167 FILING DATE: 19-Dec-2001
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CITY: Abbott Park
                                                                                                                                                                              TELEPHONE: 847/935-1729
TELEFAX: 847/938-2623
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        HAYDEN, MARK
KLASS, MICHAEL R.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FRIEDMAN,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COLPITTS, TRACI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PAULA N.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TRACEY L.
                                                                                                                                                                                                                                                6068.US
                     18:
                                                                                                                                                                                                                                                .
P1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FOR THE DISEASES OF THE GASTROINTESTINAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  2.0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 155
```

```
밁
                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                           RESULT 5
US-09-992-598-378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x US-10-025-167-18 (1-3181)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                             Sequence
                                                                                                                                                                                                                               Patent No.
                                                                                       APPLICANT:
                                                                                                                                                    APPLICANT:
               APPLICANT:
                                                           APPLICANT:
APPLICANT:
                                              APPLICANT:
                                                                                                                     APPLICANT:
                                                                                                                                      APPLICANT:
                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                        1459
                                                                                                                                                                                                                                                                                                                                                                  1399
                                                                                                                                                                                                                                                                                                                                                                                                                           1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Мо.:
                                                                                                                                                                                                                                                                                                                                                                                              156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133
                                                                                                                                                                                                                                                                                                                                     173
                                                                                                                                                                                                                                                                                                                                                                                                                                                        153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               37
                                                                                                                                                                                                                                                                                                       GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gln-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CysVal-----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                     GlySer 174
                                                                                                                                                                                                                                                                                                                                                                 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                        SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAACTCGATGGATCCGAAGTACTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                           GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                             378, Application US/09992598
o. US20020160384A1
                                                                                                                                                                                                Ashkenazi, Avi J.
                            Godowski, Paul J.
Grimaldi, J. Christopher
                                                                       Gerritsen, Mary E.
               Gurney, Austin L.
                                                         Goddard, Audrey
                                                                                                                      Ferrara, Napoleone
                                                                                                                                   Desnoyers, Luc
Eaton, Dan L.
                                                                                                                                                                                  Baker, Kevin P
Kljavin, Ivar J.
                                                                                                     Fong, Sherman
                                                                                                                                                                Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                           -AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.0774
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1167
                                                                                                                                                                                                                                                                                                                                                                 1458
                                                                                                                                                                                                                                                                                                                                                                                                                         1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            978
                                                                                                                                                                                                                                                                                                                                                                                                                                                       155
```

```
CURRENT APPLICATION NUMBER: US/09/92,598
CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR FILING DATE: 1997-10-17
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/065311
PRIOR FILING DATE: 1997-11-12
PRIOR PPLICATION NUMBER: 60/065311
PRIOR FILING DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/075945
PRIOR FILING DATE: 1997-11-13
PRIOR PPLICATION NUMBER: 60/075945
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-03-20
PRIOR PILING DATE: 1998-04-28
PRIOR APPLICATION NUMBER: 60/08332
PRIOR APPLICATION NUMBER: 60/087106
PRIOR PILING DATE: 1998-04-28
PRIOR APPLICATION NUMBER: 60/087607
PRIOR APPLICATION NUMBER: 60/088021
PRIOR APPLICATION NUMBER: 60/088021
PRIOR APPLICATION NUMBER: 60/088021
PRIOR APPLICATION NUMBER: 60/088026
PRIOR APPLICATION NUMBER: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                         PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                        PRIOR PRIOR
                                                                                                                                                                                                                                              PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILE REFERENCE: P2730P1C20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                       FILING DATE: 1998-06-09
APPLICATION NUMBER: 60/088734
                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                            FILING DATE: 1998-00 APPLICATION NUMBER:
                         APPLICATION NUMBER: 60/
                                                                                                                                                                                        FILING DATE: 1998-06-05
APPLICATION NUMBER: 60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Watanabe, Colin K. Williams, P. Mickey Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Napier, Mary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Paoni, Nicholas
DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           , Margaret Ann
wart, Timothy !
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Danie
1998-06-10
                                                                                                                                                                 1998-06-05
                                                                                                                                                                                                                                                                           1998-06-05
                                                                                                                                 60/088655
                                                                                                                                                                                                                                              60/088212
                         60/088738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Þ
```

PRIOR PRIOR PRIOR PRIOR

FILING DATE: 1998-0 APPLICATION NUMBER:

1998-06-12

60/089440

FILING DATE: 1998-06-11 APPLICATION NUMBER: 60/089105

APPLICATION NUMBER: 60/088876

APPLICATION NUMBER: 60/088858 FILING DATE: 1998-06-11 APPLICATION NUMBER: 60/088826

FILING DATE: 1998-06-10

APPLICATION NUMBER:

60/088861

FILING DATE: 1998-06-11

APPLICATION NUMBER: 60/

1998-06-10

60/088824

APPLICATION NUMBER: 60/088742
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088810

```
S
                                                                5
                                                                                                       밁
                                                                                                                                        S
                                                                                                                                                                           吊
                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                    뮍
                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                            ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x US-09-992-598-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
                                                                                                                                                                                                                                                  1033
                                   1168
                                                                                                                                                                           1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT
                                                                      101
                                                                                                                                                                                                                                                                                                                      979
 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                OR PILICATION NUMBER: 60/090678
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090690
OR PILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090694
OR FILING DATE: 1998-06-25
OR PILING DATE: 1998-06-25
OR PILING DATE: 1998-06-25
OR PILING DATE: 1998-06-25
OR PILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR APPLICATION NUMBER: 60/090862
OR APPLICATION NUMBER: 60/090863
OR APPLICATION NUMBER: 60/090863
OR APPLICATION NUMBER: 60/090863
OR APPLICATION NUMBER: 60/090863
OR PILING DATE: 1998-06-26
OR PILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/090863
OR PILING DATE: 1998-06-26
                                                                                                                                        81
                                                                                                                                                                                                               77
                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                       37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     OR APPLICATION NUMBER: 60/091360
OR FILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091478
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091544
OR FILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091519
OR APPLICATION NUMBER: 60/091519
OR APPLICATION NUMBER: 60/091519
OR APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                      17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R FILING DATE:
R APPLICATION I
R FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     R APPLICATION N
R FILING DATE:
R APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                             CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                  GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                   GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                               CysVal---
                                                                                                                                                                                                                                                                             GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                 -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                           GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                         GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER: 60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.0806
91.50
35.64%
22.77%
8.18%
                                                                  --AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                  ----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3265
26
25
75
8
                                                                                                                                                                                                               ----AlaGlu
                                                                      115
                                                                                                                                                                           1119
                                                                                                                                                                                                                                                  1059
                                                                                                                                                                                                                                                                                                                      1032
                                                                                                         1167
                                                                                                                                        100
                                                                                                                                                                                                               80
                                                                                                                                                                                                                                                                                                                                                                                                                                36
                                                                                                                                                                                                                                                                                 76
                                                                                                                                                                                                                                                                                                                                                       5
                                                                                                                                                                                                                                                                                                                                                                                              978
```

PRIOR

R FILING DATE: 1998-06.
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06.
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06.
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6

60/090349

APPLICATION NUMBER: 60/090246
FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090252
FILING DATE: 1998-06-22
APPLICATION NUMBER: 60/090254

FILING DATE: 1998-00 APPLICATION NUMBER: FILING DATE: 1998-00

60/089952

1998-06-19 1998-06-19 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089947 FILING DATE: 1998-06-19

APPLICATION NUMBER: 60/089948

FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089907
FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089908

APPLICATION NUMBER: FILING DATE: 1998-01 APPLICATION NUMBER:

1998-06-17

60/089653

60/089801

APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089600
FILING DATE: 1998-06-17

FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089598 FILING DATE: 1998-06-17

FILING DATE: 1998-06-16 APPLICATION NUMBER: 60/089532 FILING DATE: 1998-06-17

APPLICATION NUMBER:

60/089538

FILING DATE: 1998-00 APPLICATION NUMBER:

1998-06-16

60/089514

PILING DATE: 1998-06-16 APPLICATION NUMBER: 60/089512

R FILING DATE: 1998-06 R APPLICATION NUMBER: ( R FILING DATE: 1998-06-R APPLICATION NUMBER: (

1998-06-24 1998-06-24 1998-06-23 1998-06-23 1998-06-22

60/090429 60/090355

FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090535
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090540

FILING

DATE

APPLICATION NUMBER:

APPLICATION NUMBER: 60/090445

1998-06-24

60/090472

1998-06-24

60/090444 60/090435 60/090431

FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-24

```
RESULT 6
US-09-989-293A-378
; Sequence 378, Application US/09989293A
P=Fent No. US20020177164A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                             PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                    PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT APPLICATION NUMBER: US/09/989,293A CURRENT FILING DATE: 2001-11-20 PRIOR APPLICATION NUMBER: 60/049787 PRIOR FILING DATE: 1997-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P1C66
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     153
DR FILING DATE: 1998-02-25

DR APPLICATION NUMBER: 60/078910

DR FILING DATE: 1998-03-20

DR APPLICATION NUMBER: 60/083322

DR FILING DATE: 1998-04-28

DR APPLICATION NUMBER: 60/084600

DR APPLICATION NUMBER: 60/084600

DR FILING DATE: 1998-05-07

DR APPLICATION NUMBER: 60/087106

DR FILING DATE: 1998-05-28
                                                                                                                                                                                                                                                                                                                       FILING DATE: 1997-11-12
APPLICATION NUMBER: 60/065311
FILING DATE: 1997-11-13
APPLICATION NUMBER: 60/066770
                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/062250 FILING DATE: 1997-10-17 APPLICATION NUMBER: 60/065186
                                                                                                                                                                                                                                                                    FILING DATE: 1997-11-24
APPLICATION NUMBER: 60/075945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GGAAGAĠĆŤGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerPheAla-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ||| ::: |||:::|||||||||||| :::||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: ||| ::: || ::: || ::: || ::: || ::: || ::: || :: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || ::: || :: || ::: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: || :: 
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Watanabe, Colin K. Williams, P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gurney, Austin L.
Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gerritsen, Mary E. Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Baker, Kevin P.
Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Grimaldi,J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Margaret Ann
art. Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                      PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R FILING DATE: 1998-06
R APPLICATION NUMBER:
R FILING DATE: 1998-06
R APPLICATION NUMBER:
     R FILING DATE:
R APPLICATION NI
R FILING DATE:
R APPLICATION NI
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-05
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                       FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60 FILING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
           NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-04
                                                                                            1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-12
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-1
                                      1998-06-17
        60/089801
```

DR FILING DATE: 1998-06-16
DR APPLICATION NUMBER: 60/08
DR FILING DATE: 1998-06-16
DR APPLICATION NUMBER: 60/08
DR FILING DATE: 1998-06-17
DR FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/088021 APPLICATION NUMBER: 60/087607 FILING DATE: 1998-06-02 FILING DATE: 1998-06-10 APPLICATION NUMBER: 60/088738 APPLICATION NUMBER: 60/088030 APPLICATION NUMBER: 60/088026 APPLICATION NUMBER: 60/089598 APPLICATION NUMBER: 60/088810 APPLICATION NUMBER: 60/088212 APPLICATION NUMBER: 60/088202 APPLICATION NUMBER: 60/088326 NUMBER: 60/089600 NUMBER: 60/089653 60/088734 60/088655 60/088167 60/088033 60/088029 60/088028 60/088025 60/087827 60/087759 60/087609 60/089538 60/089514 60/089512 60/089440 60/089105 60/088876 60/088861 60/088826 60/088824 60/088742 60/088217 60/089599 60/089532 60/088858

```
PRIOR
                                      PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DR PELICATION NUMBER: 60/090254

R FILING DATE: 1998-06-22

OR APPLICATION NUMBER: 60/090349

OR FILING DATE: 1998-06-23

OR APPLICATION NUMBER: 60/090355

OR PILING DATE: 1998-06-23

OR PILING DATE: 1998-06-24

OR APPLICATION NUMBER: 60/090429

OR FILING DATE: 1998-06-24

OR APPLICATION NUMBER: 60/090431

OR APPLICATION NUMBER: 60/090435

OR FILING DATE: 1998-06-24

OR APPLICATION NUMBER: 60/090444

OR APPLICATION NUMBER: 60/090444

OR APPLICATION NUMBER: 60/090445

OR APPLICATION NUMBER: 60/090472

OR APPLICATION NUMBER: 60/090472

OR PILING DATE: 1998-06-24

OR APPLICATION NUMBER: 60/090472

OR APPLICATION NUMBER: 60/090472

OR APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OR APPLICATION NUMBER: 60/089908
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089947
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/089952
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/09952
OR FILING DATE: 1998-06-22
OR APPLICATION NUMBER: 60/090246
OR FILING DATE: 1998-06-22
OR FILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                          DR APPLICATION NUMBER: 60/090695
DR FILING DATE: 1998-06-25
DR APPLICATION NUMBER: 60/090696
DR FILING DATE: 1998-06-25
DR APPLICATION NUMBER: 60/090862
DR APPLICATION NUMBER: 60/090863
DR APPLICATION NUMBER: 60/090863
                                                                                                                                                                                                  R FILING DATE: 1998-06-26
R APPLICATION NUMBER: 60/09
R FILING DATE: 1998-07-01
R APPLICATION NUMBER: 60/09
R APPLICATION NUMBER: 60/09
R FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/090678
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090690
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090557
FILING DATE: 1998-06-25
FILING DATE: 1998-06-25
                                                                                                                                               APPLICATION NUMBER: 60/091544 FILING DATE: 1998-07-01 APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090694
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090540
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090542
FILING DATE:
                                    PILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
                                                                        PILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
                                                                                                            FILING DATE: 1998-0' APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090252
FILING DATE: 1998-06-22
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06-18
   NUMBER: 60/091982
                                                                                                                                 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-18
                     1998-07-07
                                                                                                                                                                                                                        60/091478
                                                                                                                                                                                                                                                            60/091360
                                                                                                            60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/089907
```

```
RESULT 7
US-10-063-547-69
                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  吊
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US-10-034-500-2 (1-218) x US-09-989-293A-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                    Sequence 69, App
Publication No.
                                                                                                                                                                                        GENERAL
APPLICANT: Gerritsen, Mary E.
APPLICANT: Goddard, Audrey
APPLICANT: Goddwski, Paul J.
APPLICANT: Grimaldi, Christopher J.
APPLICANT: Grimaldi, Christopher J.
APPLICANT: Gurney, Austin L.
APPLICANT: Watanabe, Colin K.
APPLICANT: Watanabe, Colin K.
APPLICANT: Wood, William I.
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
                                                                                                                                                     APPLICANT: Eaton, Dan L. APPLICANT: Filvaroff, E
                                                                                                                                                                                                                                                                                          1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1228
                                                                                                                                                                                                                                                                                                                                                                                                                          1339 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No.:
                                                                                                                                                                                                                                                                                                                         173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133 ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     952 GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/092182 FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GATGAAAGAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                          TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAACTCGATGGATCCGAAGTACTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysVal-----AlaGlu
                                                                                                                                                                                      INFORMATION:
                                                                                                                                                                                                                                                                                          GGAAAT
                                                                                                                                                                                                                                                                                                                                                                                         -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                      Application US/10063547
                                                                                                                                                       Filvaroff, Ellen
                                                                                                                                                                                                                                                                                          1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1119
                                                                                                                                                                                                                                                                                                                                                                                                                          1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1059
                                                                                                                                                                                                                                                                                                                                                                                           172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      36
                                                                                                                                                                                                                                                                                                                                                                                                                                                             155
```

Desnoyers, Luc

```
Pag
```

```
LENGTH: 3265
; TYPE: DNA
; ORGANISM: Homo S
US-10-063-547-69
                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Б
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                                                                                                                                                                   გ
                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x US-10-063-547-69 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                    RESULT
                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Best
                                                                                                  US-09-989-735-378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILE REFERENCE: P3230R1C1
CURRENT APPLICATION NUMBER: US/10/063,547
CURRENT FILING DATE: 2002-05-02
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 170
SEQ ID NO 69
                                               Sequence 378, Application US/09989735 Publication No. US20020193299A1 GENERAL INFORMATION:
APPLICANT: Ashkenazi,Avi J.
APPLICANT: Baker,Kevin P.
APPLICANT: Botstein,David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1120
                                                                                                                                                       1459
                                                                                                                                                                                                                         1399
                                                                                                                                                                                                                                                                                            1339
                                                                                                                                                                                                                                                                                                                                                               1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               No.:
                                                                                                                                                                                     173
                                                                                                                                                                                                                                                                                                                             153
                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         952
                                                                                                                                                                                                                                                          156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Сувуа1-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGAAAGAAACACTCATGGCAGGATTACCTACATAT--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GGTÁÁGGACCGCCTAAATCGAATGÁÁTCAAGCÁGCAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                     GGAAAT 1464
                                                                                                                                                                                     GlySer 174
                                                                                                                                                                                                                                                                                            GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                             SerPheAla----
                                                                                                                                                                                                                                                                                                                                                               TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                             ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                       TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                                                                                                                                                       -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -CCTCTGGGA 1167
                                                                                                                                                                                                                         1458
                                                                                                                                                                                                                                                                                            1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           978
                                                                                                                                                                                                                                                                                                                             155
```

```
PRIOR APPLICATION NUMBER: 60/04787
PRIOR FILING DATE: 1997-06-16
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-10-17
PRIOR PELING DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/065311
PRIOR PELING DATE: 1997-11-13
PRIOR PELING DATE: 1997-11-24
PRIOR PELING DATE: 1997-11-24
PRIOR PELING DATE: 1997-11-24
PRIOR PELING DATE: 1998-07-25
PRIOR PELING DATE: 1998-07-25
PRIOR PELING DATE: 1998-07-29
PRIOR PELING DATE: 1998-07-29
PRIOR PELING DATE: 1998-07-29
PRIOR PELING DATE: 1998-03-20
PRIOR PELING DATE: 1998-04-28
PRIOR PELING DATE: 1998-04-28
PRIOR APPLICATION NUMBER: 60/084600
PRIOR PELING DATE: 1998-05-28
PRIOR APPLICATION NUMBER: 60/087106
PRIOR PELING DATE: 1998-05-28
PRIOR PELING DATE: 1998-05-28
PRIOR PELICATION NUMBER: 60/087607
PRIOR FILING DATE: 1998-05-28
PRIOR PELICATION NUMBER: 60/087607
PRIOR FILING DATE: 1998-05-28
PRIOR PELICATION NUMBER: 60/087607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Zhang, Zemin
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C61
CURRENT APPLICATION NUMBER: US/09/989,735
CURRENT FILING DATE: 2001-11-19
                                        PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
R APPLICATION NUMBER: 60/01
R FILING DATE: 1998-06-04
RR APPLICATION NUMBER: 60/01
RR FILING DATE: 1998-06-05
R FILING DATE: 1998-6-0/01
R FILING DATE: 1998-6-05
R FILING DATE: 1998-6-05
                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088029
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/088025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/
FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/088021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gerber, Hanspeter
Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Grimaldi, J. Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Godowski, Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Williams, P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Watanabe,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Roy, Margaret Ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Nicholas F.
                                                                      NUMBER: 60/088167
                                                                                                                                             NUMBER: 60/088326
                                                                                                                                                                                                                                                                                           NUMBER: 60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Timothy
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/087759
                                                                                                                                                                                                                        60/088033
                                                                                                                                                                                                                                                                                                                                                                                                                                     60/088028
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/088026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/087827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         M
```

60/088202

PRIOR PRIOR PRIOR

DR FILING DATE: 1998-06-10

PR APPLICATION NUMBER: 60/088826

PR FILING DATE: 1998-06-10

PR APPLICATION NUMBER: 60/088858

PR FILING DATE: 1998-06-11

PR APPLICATION NUMBER: 60/088861

PR APPLICATION NUMBER: 60/088876

PR FILING DATE: 1998-06-11

PR PILING DATE: 1998-06-11

PR FILING DATE: 1998-06-11

PRIOR

APPLICATION NUMBER:

60/089105

DR FILING DATE: 1998-06-12

OR APPLICATION NUMBER: 60/089440

OR PILING DATE: 1998-06-16

OR APPLICATION NUMBER: 60/089512

OR APPLICATION NUMBER: 60/089514

OR APPLICATION NUMBER: 60/089514

OR APPLICATION NUMBER: 60/089532

OR APPLICATION NUMBER: 60/089532

OR APPLICATION NUMBER: 60/089533

DR FILING DATE: 1998-06-17

R APPLICATION NUMBER: 60/089598

DR FILING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/089599

R FILING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/089600

DR FILING DATE: 1998-06-17

DR APPLICATION NUMBER: 60/089653

R FILING DATE: 1998-06
R APPLICATION NUMBER:
R FILING DATE: 1998-06
R APPLICATION NUMBER:
R FILING DATE: 1998-06
R APPLICATION NUMBER:

1998-06-18 1998-06-18

60/089907 60/089801

60/089908

1998-06-1

PRIOR PRIOR PRIOR PRIOR PRIOR

PILING DATE: 1998-00 APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER:

1998-06-10

60/088810

60/088824

1998-06-10

R FILING DATE: 1998-06-R APPLICATION NUMBER: 6 R FILING DATE: 1998-06-R APPLICATION NUMBER: 6

1998-06-09 1998-06-

60/088655

1998-06-10

60/088738 60/088734 R FILING DATE: 1998-06 R APPLICATION NUMBER: 0 R FILING DATE: 1998-06 R APPLICATION NUMBER: 0

1998-06-05

60/088212

60/088217

1998-06-05

R FILING DATE: 1998-06 APPLICATION NUMBER: R FILING DATE: 1998-06 APPLICATION NUMBER:

1998-06-10

```
Alignment S
Pred. No.:
S
                                      묽
                                                                        á
                                                                                                                 문
                                                                                                                                                 S
                                                                                                                                                                                           밁
                                                                                                                                                                                                                              5
                                                                                                                                                                                                                                                                        US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                 Query Match:
                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                      1033
                                                                                                                                                                                           952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            OR APPLICATION NUMBER: 60/090694
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090695
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR APPLICATION NUMBER: 60/090696
OR APPLICATION NUMBER: 60/090862
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/090863
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/091360
OR FILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091478
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091544
OR APPLICATION NUMBER: 60/091519
OR APPLICATION NUMBER: 60/091519
OR APPLICATION NUMBER: 60/091519
OR APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OR APPLICATION UMBER: 60/090535
OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090540
OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090542
OR FILING DATE: 1998-06-24
OR PILING DATE: 1998-06-24
OR PILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/09057
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090676
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090678
OR APPLICATION NUMBER: 60/090690
OR APPLICATION NUMBER: 60/090690
OR APPLICATION NUMBER: 60/090690
OR APPLICATION NUMBER: 60/090690
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090690
OR FILING DATE: 1998-06-25
                                                                          57
                                                                                                                                                     37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  DR APPLICATION NUMBER: 60/091978

R FILING DATE: 1998-07-07

DR APPLICATION NUMBER: 60/091982

DR FILING DATE: 1998-07-07

DR APPLICATION NUMBER: 60/092182

DR FILING DATE: 1998-07-09
  77
                                                                                                                                                                                                                        17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/091626
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/090445
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472
FILING DATE: 1998-06-24
                                                                                                                                                                                         GTTCTTGATAAGTCTGGAAGCATGGGG
Cysval-
                                                                  GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                     GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                 -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-24
                                                                                                                                                                                                                                                                                                             0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                    x US-09-989-735-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/090444
                                                                                                                                                                                                                                                                                                       Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
                                      -- ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                             3265
46
26
55
75
AlaGlu
                                                                                                                 1032
                                      1059
                                                                                                                                                                                                                                  36
                                                                          76
                                                                                                                                                     56
```

OR FILING DATE: 1998-06-18
OR APPLICATION NUMBER: 60/089947
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089948
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089952
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/090246
OR FILING DATE: 1998-06-22
OR FILING DATE: 1998-06-22

R FILING DATE: 1998-06-23
R FILING DATE: 1998-06-23
R FILING DATE: 1998-06-23
R APPLICATION NUMBER: 60/05
R FILING DATE: 1998-06-24
R APPLICATION NUMBER: 60/05
R APPLICATION NUMBER: 60/05
R FILING DATE: 1998-06-24
R FILING DATE: 1998-06-24
R FILING DATE: 1998-06-24

60/090429 60/090355 60/090349 60/090254 60/090252

60/090431

APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER: APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-22 1998-06-22

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-09-990-444-378
CURRENT APPLICATION NUMBER: US/09/990,444
CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR APPLICATION NUMBER: 60/062250
PRIOR APPLICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/06511
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/066770
PRIOR APPLICATION NUMBER: 60/066770
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 378, Application US/09990444 Publication No. US20020193300A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                          APPLICANT: Zhang, Zemin
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C19
                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                    PPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GATGAAAGAACACACTCATGGCAGGATTACCTACATAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                               Grimaldi, J.Christopher Gurney, Austin L. Kljavin, Ivar J.
                                                                                                                                                                                                                                Williams,
                                                                                                                                                                                                                                                                                                                                                                                                                              Fong, Sherman
Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baker, Kevin P.
                                                                                                                                                                                                                     Wood, William I.
                                                                                                                                                                                                                                                           Tumas, Daniel
                                                                                                                                                                                                                                                                           Stewart,
                                                                                                                                                                                                                                                                                                                                                                                        Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                  Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Eaton, Dan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Desnoyers,Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Botstein, David
                                                                                                                                                                                                                                                                                                      Paoni, Nicholas F.
                                                                                                                                                                                                                                                                                                                              Napier, Mary A.
                                                                                                                                                                                                                                                                    Margaret Ann
art, Timothy A.
                                                                                                                                                                                                                                P. Mickey
                                                                                                                                                                                                                                              Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         -CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1398
                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                               PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
PRIOR
                   PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                       PRIOR PRIOR
                                                                                                                                                                                                                   PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                   PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                           PRIOR
                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                           PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
                                                                                                                                                                                                                                                                          APPLICATION NUMBER: FILING DATE: 1998-0. APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-04
APPLICATION NUMBER: 60/
                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                         FILING DATE:
APPLICATION
                                                                                                                                                                                                                   FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                   APPLICATION NUMBER:
                                                                                                                    FILING DATE: 1998-06-12
                                                                                                                               FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                                                                                                                                                                 APPLICATION
                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                    FILING DATE
                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE:
     DATE
                                                                                                                                                                                         NUMBER:
                                                                                                                                                                                                                                                 NUMBER:
                                                                                                                                                                                                                                                                                                                                 NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-05-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-05-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-02-25
                                                                                                                                                                                                                                                                                                                                                                           1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-05
                                                                                                                                                1998-06-11
                                                                                                                                                                           1998-06-11
                                                                                                                                                                                                                                  1998-06-10
                                                                                                                                                                                                                                                              1998-06-10
                                                                                                                                                                                                      1998-06-1
                                                                                                                                                                                                                                                                                        1998-06-10
                                                                                                                                                                                                                                                                                                                    1998-06-10
                                                                                                                                                                                                                                                                                                                                                1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-09
```

DR FILING DATE: 1998-06-16

DR APPLICATION NUMBER: 60/089512

DR FILING DATE: 1998-06-16

DR APPLICATION NUMBER: 60/089514

DR FILING DATE: 1998-06-16

DR APPLICATION NUMBER: 60/089532 FILING DATE: 1997-11 APPLICATION NUMBER: FILING DATE: 1998-02 APPLICATION NUMBER: 60/083322 FILING DATE: 1998-04-28 FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/088029 APPLICATION NUMBER: 60/088025 FILING DATE: 1998-06-02 APPLICATION NUMBER: 60/087759 APPLICATION NUMBER: 60/087607 APPLICATION NUMBER: 60/084600 APPLICATION NUMBER: 60/088655 APPLICATION NUMBER: 60/088217 APPLICATION NUMBER: 60/088021 APPLICATION NUMBER: 60/087609 60/088167 60/088326 60/088028 60/087827 60/078910 60/075945 60/089440 60/089105 60/088876 60/088826 60/088738 60/088734 60/088212 60/088202 60/088033 60/088030 60/088026 60/087106 60/088861 60/088858 60/088824 60/088810 60/088742

APPLICATION NUMBER: 60/089538 FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089598

```
RESULT 10
US-09-989-730-378
; Sequence 378, Application US/09989730
; Publication No. US20020197674A1
; GENERAL INFORMATION:
                                                                                                                       S
                                                                                                                                                     밁
                                                                                                                                                                                 S
                                                                                                                                                                                                                문
                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                          뭐
                                                                                                                                                                                                                                                                                                     ş
                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       몽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x US-09-990-444-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment :
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                            1459
                                                                                                                                                                                                                                                                                                                                        1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1120
                                                                                                                                                                                                                                                                                                                                                                                                     1168
                                                                                                                                                      1399 TATGTTTCAGATGAAĠĊTCAGAACAATGGCCTCATTĠATGCTTTTGGGGGCTCTTACATĆA
                                                                                                                       173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              952 GTTCTTGATAAGTCTGGAAGCATGGGG----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091519
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/091978 FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/091982 FILING DATE: 1998-07-07 APPLICATION NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                          TGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                                                                                                 ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                          GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                     CAACTCGATGGATCCGAAGTACTGCTGCTGATGGGGAGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                   GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Scores:
                                                                                                                                                                                                              GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                              SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                   Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CysVal------AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ACTGTTGAAAATGGATCCTGGGTGGGG 105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                 -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                              ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                            CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3265
46
26
55
75
                                                                                                                                                                                                                1398
                                                                                                                                                                                                                                                                            1338
                                                                                                                                                                                                                                                                                                                                       1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1032
                                                                                                                                                                                                                                                                                                         152
                                                                                                                                                                                                                                                                                                                                                                                                   1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   76
                                                                                                                                                                                                                                              155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              978
```

PRIOR PRIOR PRIOR PRIOR PRIOR

OR APPLICATION NUMBER: 60/090349
OR FILING DATE: 1998-06-23
OR APPLICATION NUMBER: 60/090355
OR FILING DATE: 1998-06-23
OR APPLICATION NUMBER: 60/090429
OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090431
OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090435
OR PILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/90444
OR APPLICATION NUMBER: 60/90444
OR APPLICATION NUMBER: 60/90444
OR APPLICATION NUMBER: 60/90444
OR PILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/90444
OR PILING DATE: 1998-06-24

PRIOR

R FILING DATE: 1998-06-19

R APPLICATION NUMBER: 60/990246

R FILING DATE: 1998-06-22

NR APPLICATION NUMBER: 60/090252

NR FILING DATE: 1998-06-22

RR APPLICATION NUMBER: 60/090254

RR APPLICATION NUMBER: 60/090254

PRIOR PRIOR PRIOR PRIOR PRIOR

PILING DATE: 1998-06-19 APPLICATION NUMBER: 60/089952

PRIOR PRIOR PRIOR PRIOR

FILING DATE: 1998-0 APPLICATION NUMBER:

FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089908 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089907 APPLICATION NUMBER: 60/089801

FILING DATE: 1998-00 APPLICATION NUMBER:

1998-06-19 1998-06-18

60/089948 60/089947 PRIOR PRIOR

APPLICATION NUMBER: FILING DATE: 1998-0 FILING DATE:

1998-06-17 1998-06-1998-06-

60/089653

APPLICATION NUMBER: 60/089600

FILING DATE:

APPLICATION NUMBER: 60/089599 FILING DATE: 1998-06-

PRIOR

DR FILING DATE: 1998-06-24

R APPLICATION NUMBER: 60/090676

DR FILING DATE: 1998-06-25

DR APPLICATION NUMBER: 60/090678

DR FILING DATE: 1998-06-25

DR APPLICATION NUMBER: 60/090690

FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090557 APPLICATION NUMBER: 60/090542 APPLICATION NUMBER: 60/090540 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090535 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090472 APPLICATION NUMBER: 60/090445 FILING DATE: 1998-06-24

FILING DATE: 1998-06-24

OR APPLICATION NUMBER: 60/090695
R FILING DATE: 1998-06-25
DR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-25
DR APPLICATION NUMBER: 60/090862
DR FILING DATE: 1998-06-26
DR FILING DATE: 1998-06-26
DR FILING DATE: 1998-06-26
DR PELICATION NUMBER: 60/090863

APPLICATION NUMBER: 60/090694 FILING DATE: 1998-06-25 FILING DATE: 1998-06-25

FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/091360
FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091478
FILING DATE: 1998-07-02

```
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                 PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                           PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P1C69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CURRENT APPLICATION NUMBER: US/09/989,730
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           PPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PPLICANT
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088025
OR APPLICATION NUMBER: 60/088026
OR APPLICATION NUMBER: 60/088026
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088029
OR APPLICATION NUMBER: 60/088029
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088030
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088030
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088033
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088033
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088033
OR FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                DR FILING DATE: 1998-05-07

R APPLICATION NUMBER: 60/08

DR FILING DATE: 1998-05-28

DR APPLICATION NUMBER: 60/08

DR FILING DATE: 1998-06-02

DR FILING DATE: 1998-06-02

DR FILING DATE: 1998-06-02

DR APPLICATION NUMBER: 60/08

DR FILING DATE: 1998-06-02

DR APPLICATION NUMBER: 60/08

DR FILING DATE: 1998-06-03

DR FILING DATE: 1998-06-03

DR FILING DATE: 1998-06-03

DR FILING DATE: 1998-06-03

DR POLICATION NUMBER: 60/08

DR FILING DATE: 1998-06-03

DR POLICATION NUMBER: 60/08
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1997-11-12
APPLICATION NUMBER: 60/065311
FILING DATE: 1997-11-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1997-06-16
APPLICATION NUMBER: 60/062250
FILING DATE: 1997-10-17
APPLICATION NUMBER: 60/065186
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/066770 FILING DATE: 1997-11-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/049787 FILING DATE: 1997-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/
FILING DATE: 1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Goddard, Audrey
Godowski, Paul J.
Grimaldi, J. Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gerber, Hanspeter
Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Eaton, Dan L.
Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Baker, Kevin P.
Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Watanabe, Colin K.
Williams, P. Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Paoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      DATE: 1998-02-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           javin, Ivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Margaret Ann
art, Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               , Nicholas
                                                                                                                                                                                                                                                                                                                                                                                      NUMBER: 60/088021
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Daniel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ٩
                                                                                                                                                                                                                                                                                                                                                                                                                                       60/087827
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/087607
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/078910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/075945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/087609
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/087106
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/084600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               꾀
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      (H)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                  PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PR APPLICATION NUMBER: 60/089440
PR FILING DATE: 1998-06-16
PR APPLICATION NUMBER: 60/089512
PR FILING DATE: 1998-06-16
PR APPLICATION NUMBER: 60/089532
  DR FILING DATE: 1998-06-22
DR APPLICATION NUMBER: 60/05
DR FILING DATE: 1998-06-22
DR APPLICATION NUMBER: 60/05
DR APPLICATION NUMBER: 60/05
DR APPLICATION NUMBER: 60/05
DR APPLICATION NUMBER: 60/05
DR FILING DATE: 1998-06-23
DR APPLICATION NUMBER: 60/05
DR FILING DATE: 1998-06-23
DR APPLICATION NUMBER: 60/05
DR FILING DATE: 1998-06-24
DR FILING DATE: 1998-06-24
DR FILING DATE: 1998-06-24
DR FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             R APPLICATION NUMBER: 6
R FILING DATE: 1998-06
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R FILING DATE: 1998-06-
R FILING DATE: 1998-06-
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                          R FILING DATE:
R APPLICATION N
R FILING DATE:
R APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION N
APPLICATION N
APPLICATION N
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION I FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
FILING DATE: 1998-01
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-00
APPLICATION NUMBER:
FILING DATE: 1998-00
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60 FILING DATE: 1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION |
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/089598
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE:
APPLICATION I
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER:
                                                                                                                                                                                                                                                                                                                                                              NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                  NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER:
                                                                                                                                                                                                                                                                                                               NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                           1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-18
                                                                                                                                                                                                                                                                                                                                         1998-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/088167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             60/089105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/088876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/088858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/088826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/088824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/088742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/088738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/088212
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/088202
                                                         60/090429
                                                                                                           60/090355
                                                                                                                                                                                                              60/090254
                                                                                                                                                                                                                                                                60/090252
                                                                                                                                                                                                                                                                                                                                                                                                                60/089948
                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/089947
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/089907
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/089801
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/089653
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/089600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/089599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/088861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088810
                                                                                                                                                            60/090349
                                                                                                                                                                                                                                                                                                               60/090246
                                                                                                                                                                                                                                                                                                                                                              60/089952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/089908
```

R FILING DATE: 1998-06
R APPLICATION NUMBER: (
R FILING DATE: 1998-06
R APPLICATION NUMBER: (

1998-06-24 1998-06-24

60/090444 60/090435

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
     밁
                                   δ
                                                                         밁
                                                                                                          S
                                                                                                                                               밁
                                                                                                                                                                                Ś
                                                                                                                                                                                                                    US-10-034-500-2 (1-218) x US-09-989-730-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                                                                                                                                                   Alignment Scores:
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
     1033
                                                                           979
                                                                                                                                                 952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 OR PILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090695
OR APPLICATION NUMBER: 60/090696
OR APPLICATION NUMBER: 60/090866
OR PILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090862
OR APPLICATION NUMBER: 60/090863
OR APPLICATION NUMBER: 60/091863
OR APPLICATION NUMBER: 60/091360
OR APPLICATION NUMBER: 60/091360
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               OR FILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090540
OR PILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/090542
OR PILING DATE: 1998-06-24
OR PILING DATE: 1998-06-24
OR APPLICATION NUMBER: 60/09057
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090678
OR APPLICATION NUMBER: 60/090678
OR APPLICATION NUMBER: 60/090678
OR APPLICATION NUMBER: 60/090678
OR APPLICATION NUMBER: 60/090690
OR APPLICATION NUMBER: 60/090690
OR APPLICATION NUMBER: 60/090694
                                       57
                                                                                                           37
                                                                                                                                                                                   17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DR FILING DATE: 1998-06-24

RAPPLICATION NUMBER: 60/090445

DR FILING DATE: 1998-06-24

DR APPLICATION NUMBER: 60/090472

DR PILING DATE: 1998-06-24

DR APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
                    GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                        GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                               GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                       -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                           0.0806
91.50
35.64%
22.77%
8.18%
----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                        Gaps:
                                                                                                                                                                                                                                                        3265
46
26
55
75
                                                                                                           56
                                                                                                                                               978
                                                                                                                                                                                  36
```

DR APPLICATION NUMBER: 60/065311
DR FILING DATE: 1997-11-13
DR FILING DATE: 1997-11-24
DR APPLICATION NUMBER: 60/066770
DR FILING DATE: 1998-02-25
DR APPLICATION NUMBER: 60/078910
DR FILING DATE: 1998-03-20
DR FILING DATE: 1998-03-20
DR FILING DATE: 1998-03-20
DR FILING DATE: 1998-04-28
DR APPLICATION NUMBER: 60/08322
DR FILING DATE: 1998-05-07
DR FILING DATE: 1998-05-28
DR APPLICATION NUMBER: 60/087607
DR APPLICATION NUMBER: 60/087607
DR FILING DATE: 1998-06-02
DR APPLICATION NUMBER: 60/087609
DR FILING DATE: 1998-06-02
DR APPLICATION NUMBER: 60/087827
DR APPLICATION NUMBER: 60/087827
DR APPLICATION NUMBER: 60/087827
DR APPLICATION NUMBER: 60/087827
DR APPLICATION NUMBER: 60/08021
DR APPLICATION NUMBER: 60/08025
DR FILING DATE: 1998-06-04

************************			
PRIOR	PRIOR	PRIOR	PRIOR
APPLICATION FILING DATE	APPLICATION FILING DATE APPLICATION	FILING DATE APPLICATION FILING DATE	FILING DATE APPLICATION FILING DATE FILING DATE APPLICATION FILING DATE APPLICATION
1198-R: 6 1198-R: 6 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06- 1198-06-	TUMBER: 60/0 1998-06-24 TUMBER: 60/0	1998-06-18 1998-06-19 1998-06-19 10MBER: 60/08994 10MBER: 60/08995 10MBER: 60/08995 1998-06-19 10MBER: 60/09024 1098-06-22 1098-06-22 11998-06-22 11998-06-22 11998-06-23 11998-06-23 11998-06-23 11998-06-23	1998-06 10988-06 1998-06 11998-06 11998-06 11998-06 11998-06 1098ER: 11998-06 11998-06 11998-06 11998-06

PRIOR

OR PELLING DATE: 1998-06-04
OR PELLING DATE: 1998-06-04
OR PELLING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08028
OR PELLING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08029
OR PELLING DATE: 1998-06-04
OR PELLING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08033
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08033
OR FILING DATE: 1998-06-05
OR PELLING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/08202
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/08221
OR PELLING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088217
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088217
OR APPLICATION NUMBER: 60/088734
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088742
OR APPLICATION NUMBER: 60/088810
OR APPLICATION NUMBER: 60/088810
OR APPLICATION NUMBER: 60/088824
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088826
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088826
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088866
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/088861
OR APPLICATION NUMBER: 60/08940
OR FILING DATE: 1998-06-11
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089512
OR APPLICATION NUMBER: 60/089514

1998-07-02

60/091478

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
RESULT 12
US-09-991-181-378
                                                                   δ
                                                                                                 문
                                                                                                                           S
                                                                                                                                                       밁
                                                                                                                                                                                ş
                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                         δ
                                                                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                                                                 ঠ
                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                      र्
                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                               δ
                                                                                                                                                                                                                                                                                                                                                                                                                                             문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x US-09-990-436-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
                                            1459
                                                                                                  1399
                                                                                                                                                       1339
                                                                                                                                                                                                                                                                                                                                                                                      1120
                                                                                                                                                                                                                                                                        1228
                                                                                                                                                                                                                                                                                                                              1168
                                                                                                                                                                                                                                                                                                                                                                                                                                              1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1033
                                                                                                                                                                                                                 1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          No.:
                                                                      173
                                                                                                                             156
                                                                                                                                                                                     153
                                                                                                                                                                                                                                                                                                  116
                                                                                                                                                                                                                                                                                                                                                          101
                                                                                                                                                                                                                                           133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17
                                                                                                                                                                                                                                                                                                                                                                                                                 81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/092182 FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/091982 FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                           GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                     GlySer 174
                                                                                                 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                       -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                      SerPheAla-----
                                                                                                                                                                                                           TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                   ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                   CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                        Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                   GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                            CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                          ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCAGCAAAACATTTCCTGCTGCÄG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluLeuAlaiysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                         GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                      ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AlaGlu 80
                                                                                               1458
                                                                                                                                                    1398
                                                                                                                                                                                                              1338
                                                                                                                                                                                                                                          152
                                                                                                                                                                                                                                                                     1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1032
                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36
```

```
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and TITLE OF INVENTION: Acids Encoding the Same FILE REFERENCE: P2730P1C53
; CURRENT APPLICATION UNMER: US/09/991,181
; CURRENT FILING DATE: 2001-11-16
; PRIOR APPLICATION NUMBER: 60/049787
; PRIOR FILING DATE: 1997-10-16
; PRIOR FILING DATE: 1997-10-17
; PRIOR APPLICATION NUMBER: 60/065186
; PRIOR FILING DATE: 1997-11-12
; PRIOR APPLICATION NUMBER: 60/065186
; PRIOR APPLICATION NUMBER: 60/065181
; PRIOR APPLICATION NUMBER: 60/065181
; PRIOR APPLICATION NUMBER: 60/065181
; PRIOR APPLICATION NUMBER: 60/065311
; PRIOR APPLICATION NUMBER: 60/065311
; PRIOR APPLICATION NUMBER: 60/06570
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GENERAL INFORMATION:
APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 378, Application US/09991181 Publication No. US20020197615A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        OR APPLICATION NUMBER: 60/066770
OR FILING DATE: 1997-11-24
OR APPLICATION NUMBER: 60/075945
OR APPLICATION NUMBER: 60/075945
OR APPLICATION NUMBER: 60/078910
OR FILING DATE: 1998-03-20
OR APPLICATION NUMBER: 60/083322
OR FILING DATE: 1998-04-28
OR APPLICATION NUMBER: 60/084600
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/087106
OR FILING DATE: 1998-05-28
OR FILING DATE: 1998-05-28
                                                              OR APPLICATION NUMBER: 60/087827
OR FILING DATE: 1998-06-03
OR APPLICATION NUMBER: 60/088021
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088025
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088026
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088028
OR APPLICATION NUMBER: 60/088028
OR APPLICATION NUMBER: 60/088028
OR APPLICATION NUMBER: 60/088029
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088029
OR FILING DATE: 1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/087607
FILING DATE: 1998-06-02
APPLICATION NUMBER: 60/087609
FILING DATE: 1998-06-02
APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                             APPLICATION FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Watanabe, Colin K. Williams, P. Mickey Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Paoni, Nicholas F. Roy, Margaret Ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gerritsen, Mary E. Goddard, Audrey Godowski, Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Grimaldi, J. Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                      NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Daniel
                           1998-06-04
                                                                                                                                                                                                                                                                                                                                                                  1998-06-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Timothy
                                               60/088030
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Þ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and Nucleic
```

PRIOR PRIOR PRIOR PRIOR PRIOR

FILING DATE: 1998-0 APPLICATION NUMBER: APPLICATION PRIOR

FILING

APPLICATION NUMBER: FILING DATE: 1998-06

60/088212

60/088202 60/088167 60/088326

NUMBER: 60/088217

R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6
R FILING DATE: 1998-06R APPLICATION NUMBER: 6

NUMBER: 60/ : 1998-06-04

1998-06-04

PRIOR

FILING

DATE:

1998-06-10

NUMBER: 60/088738

R FILING DATE: R APPLICATION N R FILING DATE: R APPLICATION N

NUMBER:

60/088734 60/088655

1998-06-10

1998-06-09 1998-06-05 1998-06-05 1998-06-05 1998-06-05

OR FILING DATE: 1998-06-10

OR APPLICATION NUMBER: 60/088858

OR FILING DATE: 1998-06-11

OR FILING DATE: 1998-06-11

OR APPLICATION NUMBER: 60/088866

OR FILING DATE: 1998-06-11

OR FILING DATE: 1998-06-11

APPLICATION NUMBER: 60/089105 FILING DATE: 1998-06-12 APPLICATION NUMBER: 60/089440

1998-06-16

R APPLICATION NUMBER: 60/088742
BR FILLING DATE: 1998-06-10
BR APPLICATION NUMBER: 60/088810
BR FILLING DATE: 1998-06-10
BR APPLICATION NUMBER: 60/088824
BR FILLING DATE: 1998-06-10
BR APPLICATION NUMBER: 60/088826

```
Alignment (
Pred. No.:
                                                                                                                                           8
                                                                                                                                                                                                                                                                       Percent Similarity:
Best Local Similarity:
Query Match:
                                           8
                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                        Score:
                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-09-991-181-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR
PRIOR
979
                                                                                                  952
                                                                                                                                                                                                                                                                                                                                                                                                                                           OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091626
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091633
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091978
OR APPLICATION NUMBER: 60/091982
OR APPLICATION NUMBER: 60/091982
OR APPLICATION NUMBER: 60/092182
OR FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        DR APPLICATION NUMBER: 60/090678

OR FILING DATE: 1998-06-25

OR APPLICATION NUMBER: 60/090690

OR FILING DATE: 1998-06-25

OR APPLICATION NUMBER: 60/090694

OR APPLICATION NUMBER: 60/090695

OR FILING DATE: 1998-06-25

OR APPLICATION NUMBER: 60/090695
                                                 37
                                                                                                                                                17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R APPLICATION NUMBER: (
R FILING DATE: 1998-06-
R APPLICATION NUMBER: (
R FILING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER:
FILING DATE: 1998-0
APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090472
FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090535
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION I
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE: 1998-0 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090676
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             FILING DATE:
APPLICATION 1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090540
                                         GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                      LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
-GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER: 60/
: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-07-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-07-0
                                                                                                                                                                                                                                                   0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/090862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/091360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/090863
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/090472
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090431
                                                                                                                                                                                                                                                   Conservative: Mismatches: Indels: Gaps:
                                                                                                                                                                                                                                                                                                                                                   Length:
Matches:
                                                                                                                                                                                                                                                   3265
46
26
55
75
```

PRIOR PRIOR

APPLICATION NUMBER: 60/089598 FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089599 FILING DATE: 1998-06-17

: 1998-06-17 NIJMDTT

NUMBER: 60/089653: 1998-06-17

APPLICATION NUMBER: 60/089538 FILING DATE: 1998-06-16 APPLICATION NUMBER: 60/089532 FILING DATE: 1998-06-16 APPLICATION NUMBER: 60/089514 FILING DATE: 1998-06-16 APPLICATION NUMBER: 60/089512

FILING DATE:

1998-06-17

FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089908
FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089947

APPLICATION NUMBER: FILING DATE: 1998-01
APPLICATION NUMBER:

1998-06-18

60/089907 60/089801

FILING DATE: FILING DATE: APPLICATION NUMBER:

R FILING DATE: 1998-06-R APPLICATION NUMBER: 6 R FILING DATE: 1998-06-R APPLICATION NUMBER: 6 R FILING DATE: 1998-06-

1998-06-23 1998-06-22 1998-06-22 1998-06-22

FILING DATE: 1998-06 APPLICATION NUMBER:

60/090254 60/090349

56 978 FILING DATE: APPLICATION 1 FILING DATE: APPLICATION 1

NUMBER: 60/090252 NUMBER: 60/090246 APPLICATION NUMBER: 60/089952

1998-06-19 1998-06-19

APPLICATION I FILING DATE:

NUMBER: 60/089948

1998-06-19

		US-	8 8 8 8 8	B 8 B 8 B 8	p
I C C C C C C C C C C C C C C C C C C C	APPLICANT: Grimaldi, J.Christopher APPLICANT: Gurney, Austin L. APPLICANT: Kljavin, Ivar J. APPLICANT: Napier, Mary A. APPLICANT: Pan, James APPLICANT: Pan, James APPLICANT: Pan, James APPLICANT: Roy, Margaret Ann APPLICANT: Stewart, Timothy A. APPLICANT: Tumas, Daniel	7 N N N	153 SerPheAla	101AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115	57 GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76 :::
PRIOR	PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR	PRIOR	PRIOR	PRIOR	PRIOR
יכהכהכהכהכהכה		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~			
PPLICATION I ILING DATE: PPLICATION I ILING DATE: ILING DATE: ILING DATE: ILING DATE: PPLICATION I ILING DATE: PPLICATION I ILING DATE: PPLICATION I ILING DATE: PPLICATION I IDING DATE: PPLICATION I	TING	DITAC BUITTAC COLLEGA BUITTAC COLLEGA BUITTAC COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA COLLEGA	FILING DATE: 1998-0; FILING DATE: 1998-0; FILING DATE: 1998-0; FILING DATE: 1998-0; APPLICATION NUMBER: FILING DATE: 1998-0;	FILING DATE: APPLICATION I FILING DATE: APPLICATION I FILING DATE: APPLICATION I FILING DATE: FILING DATE: FILING DATE: APPLICATION I FILING DATE: APPLICATION I FILING DATE: FILING DATE:	FILING DATE: 1997-1 APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0 APPLICATION NUMBER:
PLICATION I PLICATION I PLICATION I PLICATION I LING DATE: LING DATE: PLICATION I PLICATION I PLICATION I PLICATION I PLICATION I PLICATION I	DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE: DATE:	PLICATION I FLICATION I PLICATION I PLICATION I PLICATION I PLICATION I LING DATE: PLICATION I	PLICATION PLICAT	FING DATE: PLICATION   PLICATION   PLICATION   PLICATION   PLICATION   LING DATE: PLICATION   PLICATION   PLICATION   PLICATION   PLICATION   PLICATION   PLICATION   PLICATION	DATE:
7 7 7 7 7 7	z z z z	3-3-3-3-3-3-3-3-3			
8661 8661 8661 8661 8661 8661 8661 8661	1998 1998 1998 1998 1998 1998			866 866 866 866 866 866 866 866 866 866	991 991 991 998 998
APPLICATION NUMBER: 60 FILING DATE: 1998-06-1	TLING DATE: 1998-06-1 PPLICATION NUMBER: 60 PLING DATE: 1998-06-1 PLING DATE: 1998-06-1 TLING DATE: 1998-06-1 PPLICATION NUMBER: 60 PLING DATE: 1998-06-1 PPLICATION NUMBER: 60-1	PLICATION NUMBER: 60-02 PPLICATION NUMBER: 60-	98-06-0 98-06-0 98-06-0 98-06-0 98-06-0 98-06-0 98-06-0 98-06-0	1998-04-2 NUMBER: 60 1998-05-0 NUMBER: 60 1998-05-2 NUMBER: 60 NUMBER: 60 NUMBER: 60-0 NUMBER: 60-0	1997-10-1 NUMBER: 60 1997-11-1 NUMBER: 60 1997-11-2 NUMBER: 60 1997-11-2 NUMBER: 60 1998-02-2 NUMBER: 60-03
IPLICATION NUMBER: 60/088826 IPLICATION NUMBER: 60/088858 IPLICATION NUMBER: 60/088858 ILING DATE: 1998-06-11 IPPLICATION NUMBER: 60/088861 ILING DATE: 1998-06-11 IPLICATION NUMBER: 60/088876 IPLICATION NUMBER: 60/089105 IPLICATION NUMBER: 60/089105 IPLICATION NUMBER: 60/089105 IPPLICATION NUMBER: 60/089440 IPPLICATION NUMBER: 60/089440 IPPLICATION NUMBER: 60/089440	ILING DATE: 1998-06-10 IPPLICATION NUMBER: 60/088738 ILING DATE: 1998-06-10 IPPLICATION NUMBER: 60/088824	FILING DATE: 1998-06-04  APPLICATION NUMBER: 60/088033  FILING DATE: 1998-06-04  APPLICATION NUMBER: 60/088326  FILING DATE: 1998-06-04  APPLICATION NUMBER: 60/088167  FILING DATE: 1998-06-05  FILING DATE: 1998-06-05  APPLICATION NUMBER: 60/088202  FILING DATE: 1998-06-05  FILING DATE: 1998-06-05  FILING DATE: 1998-06-05  APPLICATION NUMBER: 60/088212  FILING DATE: 1998-06-05  APPLICATION NUMBER: 60/088655  FILING DATE: 1998-06-05  APPLICATION NUMBER: 60/088655  FILING DATE: 1998-06-09  FILING DATE: 1998-06-09  FILING DATE: 1998-06-09  FILING DATE: 1998-06-09	FILING DATE: 1998-06-03 APPLICATION NUMBER: 60/088021 APPLICATION NUMBER: 60/088021 APPLICATION NUMBER: 60/088025 FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/088026 FILING DATE: 1998-06-04 APPLICATION NUMBER: 60/088028 APPLICATION NUMBER: 60/088029 APPLICATION NUMBER: 60/088029 APPLICATION NUMBER: 60/088029	FILING DATE: 1998-04-28 APPLICATION NUMBER: 60/084600 FILING DATE: 1998-05-07 APPLICATION NUMBER: 60/087106 FILING DATE: 1998-05-28 APPLICATION NUMBER: 60/087607 FILING DATE: 1998-06-02 FILING DATE: 1998-06-02 FILING DATE: 1998-06-02 APPLICATION NUMBER: 60/087609 FILING DATE: 1998-06-02 APPLICATION NUMBER: 60/087759 FILING DATE: 1998-06-02	FILING DATE: 1997-10-17 APPLICATION NUMBER: 60/065186 FILING DATE: 1997-11-12 APPLICATION NUMBER: 60/065311 FILING DATE: 1997-11-13 APPLICATION NUMBER: 60/066770 FILING DATE: 1997-11-24 APPLICATION NUMBER: 60/075945 FILING DATE: 1998-02-25 FILING DATE: 1998-03-20

APPLICATION NUMBER: 60/089512

1998-06-1998-06-

PRIOR PRIOR

APPLICATION NUMBER: FILING DATE: 1998-06

1998-06-

APPLICATION NUMBER: 60/089538 FILING DATE: 1998-06-17

FILING DATE: 1998-06-APPLICATION NUMBER: FILING DATE: 1998-00 APPLICATION NUMBER:

60/089532

APPLICATION NUMBER: FILING DATE: 1998-06 APPLICATION NUMBER:

1998-06-

60/089600 60/089599 60/089598

FILING DATE: 1998-06-17 APPLICATION NUMBER: 60/089653

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                D.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                             밁
                                                         Ş
                                                                                       밁
                                                                                                                 S
                                                                                                                                                  밁
                                                                                                                                                                            Ś
                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                            8
                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
                                                                                                                                                                                                             1228
                                                                                                                                                                                                                                                                       1168
                                                                                                                                                                                                                                                                                                                                  1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                       1033
                                                                                                                                                  1288
                               1399
                                                                                        1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                979
                                                                                                                                                                                                                                         116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/091360
OR PILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091544
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091519
OR APPLICATION NUMBER: 60/091519
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091626
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091633
OR APPLICATION NUMBER: 60/091633
OR APPLICATION NUMBER: 60/091978
173
                                                                                                                    153
                                                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   R FILING DATE:
R APPLICATION N
R FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GTTCTTGATAAGTCTGGAAGCATGGGG--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                  GATGAAAGAAACACTCATGGCAGGATTACCTACATAT-----
                                                                                                                                                                                                                                                                                                                                                           CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                     GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                            ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                           CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaĻYsGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                  TGTATTGATGAAGTGAAA----
                                                                                                                                                                           ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                            Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCAGCAAAACATTTCCTGCTGCAG
GlySer 174
                               TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                       GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                      SerPheAla-----
                                                                                                                                                                                                                                                                                         ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                        -AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    : 1998-07-07
NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    x US-09-993-687-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                   -CAAAGTGGGGCCATTGTTCATTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                    ----CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                            -----AlaGlu
                                                                                                                                                                                                                                            132
                                                                                                                                                                                                                                                                                                       115
                                                                                                                                                                                                                                                                        1227
                                                                                                                                                                                                                                                                                                                                     1167
                                                                                                                                                                                                                                                                                                                                                                                                                            80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           36
                                                                                                                       155
```

PRIOR PRIOR PRIOR PRIOR PRIOR

FILING DATE: 1998-06-22 APPLICATION NUMBER: 60/ FILING DATE: 1998-06-23

60/090349

APPLICATION NUMBER: 60/090355

FILING DATE: 1998-06-23

APPLICATION NUMBER: 60/090252 FILING DATE: 1998-06-22 APPLICATION NUMBER: 60/090254

PRIOR PRIOR

APPLICATION NUMBER: FILING DATE: 1998-0

1998-06-24

60/090429

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER: 60/ FILING DATE: 1998-06-22

60/090246

FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089948
FILING DATE: 1998-06-19
APPLICATION NUMBER: 60/089952
FILING DATE: 1998-06-19

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089908
FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089947

FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089801
FILING DATE: 1998-06-18
APPLICATION NUMBER: 60/089907

ě

OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090695
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090862
OR FILING DATE: 1998-06-26
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/090863

1459

GGAAAT 1464

DR FILING DATE: 1998-06-25

DR APPLICATION NUMBER: 60/090678

DR FILING DATE: 1998-06-25

DR APPLICATION NUMBER: 60/090690

DR FILING DATE: 1998-06-25

DR APPLICATION NUMBER: 60/090694

PILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090676

PRIOR

FILING DATE: 1998-00 APPLICATION NUMBER:

1998-06-24

60/090557

APPLICATION NUMBER: 60/090540 FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090542

DR APPLICATION NUMBER: 60/090444

DR FILING DATE: 1998-06-24

DR APPLICATION NUMBER: 60/090445

DR APPLICATION NUMBER: 60/090472

DR APPLICATION NUMBER: 60/090472

DR APPLICATION NUMBER: 60/090535

DR APPLICATION NUMBER: 60/090535

DR APPLICATION NUMBER: 60/090535

DR APPLICATION NUMBER: 60/090535

FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090435

APPLICATION NUMBER: 60/090431

FILING DATE: 1998-06-24

```
APPLICANT: Kljavin,.....
APPLICANT: Napier,Mary A.
APPLICANT: Napier,Mary A.
APPLICANT: Pan,James
APPLICANT: Pan,James
APPLICANT: Paoni,Nicholas F.
APPLICANT: Roy, Margaret Ann
APPLICANT: Stewart, Timothy A.
APPLICANT: Watanabe, Colin K.
APPLICANT: Watanabe, Colin K.
APPLICANT: Williams, P. Mickey
APPLICANT: Wood, William I.
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITLE OF INVENTION: Acids Encoding the Same
TITLE OF INVENTION: NUMBER: US/09/989,734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 14
US-09-989-734-378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Sequence 378, I
Publication No.
                                                                PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                            OR FILING DATE: 1998-02-25
OR APPLICATION NUMBER: 60/078910
OR FILING DATE: 1998-03-20
OR PILING DATE: 1998-03-22
OR FILING DATE: 1998-04-28
OR APPLICATION NUMBER: 60/084600
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/087106
OR FILING DATE: 1998-05-28
OR APPLICATION NUMBER: 60/087607
OR APPLICATION NUMBER: 60/087607
OR FILING DATE: 1998-06-02
OR APPLICATION NUMBER: 60/087609
OR FILING DATE: 1998-06-02
OR APPLICATION NUMBER: 60/087609
OR APPLICATION NUMBER: 60/087759
OR APPLICATION NUMBER: 60/087759
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OR APPLICATION NUMBER: 60/662250
OR FILING DATE: 1997-10-17
OR APPLICATION NUMBER: 60/065186
OR FILING DATE: 1997-11-12
OR APPLICATION NUMBER: 60/065311
OR FILING DATE: 1997-11-13
OR APPLICATION NUMBER: 60/066770
OR FILING DATE: 1997-11-24
OR APPLICATION NUMBER: 60/075945
OR APPLICATION NUMBER: 60/075945
                                                            DR FILING DATE: 1998-06-03
RR APPLICATION NUMBER: 60/08
DR PILING DATE: 1998-06-04
DR APPLICATION NUMBER: 60/08
DR PILING DATE: 1998-06-04
                                                                                                                                                                                                                          PILING DATE: 1998-06 APPLICATION NUMBER:
                         PILING DATE:
APPLICATION
        FILING
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gerritsen, Mary E.
Goddard, Audrey
Godowski, Paul J.
Grimaldi, J.Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ashkenazi, Avi J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Baker, Kevin P.
Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eaton, Dan
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Application US/09989734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US20030003531A1
                                                                                                                                                                                                                                                 1998-06-02
                                             1998-06-04
                                                                                                                                                                                   60/088021
                                                                                                                                                                                                                          60/087827
                                                                60/088028
                                                                                                                                             60/088025
                         60/088029
                                                                                                      60/088026
                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                                                                                                                                      OR APPLICATION NUMBER: 60/089653
OR FILING DATE: 1998-06-17
OR APPLICATION NUMBER: 60/089801
OR APPLICATION NUMBER: 60/089801
OR FILING DATE: 1998-06-18
OR APPLICATION NUMBER: 60/089907
OR FILING DATE: 1998-06-18
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/089947
OR APPLICATION NUMBER: 60/089947
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/089948
OR APPLICATION NUMBER: 60/089952
OR FILING DATE: 1998-06-19
R APPLICATION NUMBER: 60/090246
DR FILING DATE: 1998-06-22
DR APPLICATION NUMBER: 60/090252
DR FILING DATE: 1998-06-22
DR APPLICATION NUMBER: 60/090254
DR FILING DATE: 1998-06-22
DR APPLICATION NUMBER: 60/090349
DR APPLICATION NUMBER: 60/090349
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OR APPLICATION NUMBER: 60/088742
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/08810
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088824
OR FILING DATE: 1998-06-10
OR APPLICATION NUMBER: 60/088826
OR APPLICATION NUMBER: 60/088858
OR APPLICATION NUMBER: 60/088858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       OR APPLICATION NUMBER: 60/088202
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088212
OR FILING DATE: 1998-06-05
OR APPLICATION NUMBER: 60/088217
OR APPLICATION NUMBER: 60/08855
OR APPLICATION NUMBER: 60/088655
OR APPLICATION NUMBER: 60/088655
OR APPLICATION NUMBER: 60/088655
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         R APPLICATION NUMBER: 6
R FILLING DATE: 1998-06
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R FILLING DATE: 1998-06-
R FILLING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/089599
FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089600
FILING DATE: 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06
APPLICATION NUMBER:
FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-17
APPLICATION NUMBER: 60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/089514
FILING DATE: 1998-06-16
APPLICATION NUMBER: 60/089532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/089512
FILING DATE: 1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/089105
FILING DATE: 1998-06-12
APPLICATION NUMBER: 60/089440
FILING DATE: 1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/088734
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/088738
FILING DATE: 1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION |
FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/088861
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        NUMBER: 60/088167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-13
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/089598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              60/088876
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/088326
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/088033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/088030
```

```
S
                                망
                                                                S
                                                                                                                                               Query Match:
                                                                                                                                                                  Best
                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                 Alignment
                                                                                                  US-10-034-500-2 (1-218) x US-09-989-734-378 (1-3265)
                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
                                 952 GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                  17
 37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: FILING DATE: 1998-00 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-07-01
APPLICATION NUMBER: 60/091478
FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091544
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 60/090863 FILING DATE: 1998-06-26 APPLICATION NUMBER: 60/091360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090695
FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090696
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090472
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE: 1998-06 APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090435
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 6
                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090862
FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090694 FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090690 FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/090535
                                                                                                                                                                                                                                                                                                 FILING DATE
                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: 60/091519 FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: 60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/090557
                                                         LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-23
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1998-06-24
                                                                                                                                                                                                                                                                   1998-07-09
                                                                                                                                                                                                                                                                                                   1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -90-8661
                                                                                                                                  0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/091360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090540
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090445
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090429
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/090355
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/090431
                                                                                                                                                                                                Length:
Matches:
                                                                                                                                                   Indels:
                                                                                                                                                                  Mismatches:
                                                                                                                                                                              Conservative:
                                   978
```

```
망
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         멼
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                뮹
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   US-09-997-653-378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Sequence 378, Application US/09997653 Publication No. US20030008297A1 GENERAL INFORMATION:
                                           APPLICANT: Wood, Wil APPLICANT: Zhang, Zer TITLE OF INVENTION: STITLE OF INVENTION:
                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
FILE REFERENCE: P2730P1C38
CURRENT APPLICATION NUMBER: US/09/997,653
CURRENT FILING DATE: 2001-11-15
                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                            APPLICANT:
                                                                                                                                                                                            APPLICANT
                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              TGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerPheAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |||---GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                     Ashkenazi, Avi J.
Baker, Kevin P.
                                                                          Watanabe, Colin K.
Williams, P. Mickey
Wood, William I.
Zhang, Zemin
                                                                                                                                             Tumas,
                                                                                                                                                            Stewart,
                                                                                                                                                                                                                                              Kljavin, Ivar J.
                                                                                                                                                                                                                                                         Grimaldi, J. Christopher Gurney, Austin L.
                                                                                                                                                                                                                                                                                           Godowski, Paul
                                                                                                                                                                                                                                                                                                          Goddard, Audrey
                                                                                                                                                                                                                                                                                                                     Gerritsen, Mary E
                                                                                                                                                                                                                                                                                                                                         Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                          Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                         Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                          Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                       Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                        Botstein, David
                                                                                                                                                                             Roy, Margaret Ann
                                                                                                                                                                                            Paoni, Nicholas F
                                                                                                                                                                                                                           Napier, Mary A.
                                                                                                                                                                                                              Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                             Daniel
                                            Secreted and Transmembrane Polypeptides and Nucleic Acids Encoding the Same
                                                                                                                                                            Timothy A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                - CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            115
```

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR		PRIOR
FILING DATE APPLICATION FILING DATE APPLICATION FILING DATE FILING DATE FILING DATE APPLICATION	PPLICATION	PELLING DATE APPLICATION FILING DATE APPLICATION PILING DATE APPLICATION FILING DATE APPLICATION FILING DATE FILING DATE APPLICATION FILING DATE APPLICATION FILING DATE APPLICATION APPLICATION FILING DATE
NUMBER: 60/090676 1998-06-24 NUMBER: 60/090678 1998-06-25 NUMBER: 60/090690 1998-06-25 NUMBER: 60/090694 1998-06-25 NUMBER: 60/090695 1998-06-25 NUMBER: 60/090695 NUMBER: 60/090695 1998-06-25 NUMBER: 60/090695 1998-06-25	198-06-19 NUMBER: 60/08995 1998-06-19 1998-06-29 NUMBER: 60/09024 1998-06-22 1998-06-22 NUMBER: 60/09025 1998-06-22 NUMBER: 60/0903 1998-06-22 NUMBER: 60/0903 1998-06-23 NUMBER: 60/0904 1998-06-24 NUMBER: 60/0904	1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998- 1998-

PRIOR PRIOR

OR APPLICATION NUMBER: 60/049787
OR PILING DATE: 1997-06-16
OR PILING DATE: 1997-10-17
OR APPLICATION NUMBER: 60/062250
OR PILING DATE: 1997-11-12
OR APPLICATION NUMBER: 60/065311
OF FILING DATE: 1997-11-13
OR APPLICATION NUMBER: 60/066770
OR PILING DATE: 1997-11-24
OR PILING DATE: 1997-11-24
OR PILING DATE: 1998-01-25
OR PILING DATE: 1998-02-25
OR APPLICATION NUMBER: 60/075945
OR PILING DATE: 1998-03-20
OR APPLICATION NUMBER: 60/08332
OR APPLICATION NUMBER: 60/087106
OR FILING DATE: 1998-03-20
OR APPLICATION NUMBER: 60/087106
OR FILING DATE: 1998-05-28
OR APPLICATION NUMBER: 60/087609
OR FILING DATE: 1998-05-28
OR APPLICATION NUMBER: 60/087609
OR FILING DATE: 1998-05-28
OR APPLICATION NUMBER: 60/087609
OR FILING DATE: 1998-05-02
OR APPLICATION NUMBER: 60/087609
OR FILING DATE: 1998-05-04
OR APPLICATION NUMBER: 60/088021
OR APPLICATION NUMBER: 60/088021
OR APPLICATION NUMBER: 60/088025
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088026
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088026
OR A

FILING DATE: 1998-06-26 APPLICATION NUMBER: 60/090863

APPLICATION NUMBER: 60/090862

```
Ś
                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                          8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                   Ś
                                                                                                                                              S
                                                                                                                                                                                밁
                                                                                                                                                                                                           S
                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Percent Similarity:
Best Local Similarity:
밁
                                                        В
                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                          5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
1399
                                                          1339
                                                                                                                      1288
                                                                                                                                                                                                                                                                                                     1120
                                                                                                                                                                                                                                                                                                                                                                 1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                            1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   No.
                                                                                                                                                                                                                                           1168
                                                                                                                                                                                  1228
                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            952 GTTCTTGATAAGTCTGGAAGCATGGGG------
                             156
                                                                                        153
                                                                                                                                                  133
                                                                                                                                                                                                             116
                                                                                                                                                                                                                                                                                                                                   81
                                                                                                                                                                                                                                                                                                                                                                                              77
                                                                                                                                                                                                                                                                                                                                                                                                                                                          57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/091519
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/091478
FILLING DATE: 1998-07-02
APPLICATION NUMBER: 60/091544
FILLING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/091360
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/091982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCCTCTTACATCA
                                                                                                                                                                                               Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                           GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                     GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                  CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                              CysVal------
                                                                                                                                                                                                                                                                                                                                                                                                                            -----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                          -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                          GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                        SerPheAla-----
                                                                                                                   TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                               ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                               CHACTCGATGGATCCGAAGTACTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ---GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                       ----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.0806
91.50
35.64%
22.77%
8.18%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           x US-09-997-653-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                              -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3265
46
55
75
8
                                                                                                                                                                                                                                                                                                                                                                                                                            1059
                                                                                                                                                                                                                                           1227
                                                                                                                                                                                                                                                                                                       1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56
                                                          1398
                                                                                                                    1338
                                                                                                                                                                                                                                                                                                                                                                                               80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    978
                                                                                                                                                                                  1287
                                                                                        155
```

```
RESULT 16
US-10-174-590-257
US-10-174-590-257
Sequence 257, Application US/10174590
Publication No. US20030008352A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                             Ş
                                                                                                            밁
                                                                                                                                           Ś
                                                                                                                                                                          밁
                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x US-10-174-590-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ; ORGANISM: Homo US-10-174-590-257
                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SEQ ID NO 257
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430R1C42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/10/174,590
CURRENT FILING DATE: 2002-06-18
Prior application removed - See File Wrapp
NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TYPE: DNA
                                                                                                                                                                                                                                                                                                      1033
                                                                                                              1168
                                                                                                                                                                          1120 GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                          1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                               952 GTTCTTGATAAGTCTGGAAGCATGGGG---
                  133
                                                                              116
                                                                                                                                             101
                                                                                                                                                                                                                                                                                                                                                                    979
                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                  37
                                                                                                                                                                                                                                                                        77
                                                                                                                                                                                                                                                                                                                                                                                                                                                             17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                       ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                  GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAAAT 1464
ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                      CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                     Cysval-----
                                               CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                              GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                   GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                    -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                           ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Smith, Victoria Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gurney, Austin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Goddard, Audrey
Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Chen, Jian
                                                                           ----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            F 4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   See File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
Conservative:
                                                                                                                                                                                                                                                                                                       ----ACTGTTGAAAATĠĠAŤĊĊŤĠĠGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ç
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEGITGEGYIOG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Palm
                                                                                                                                                                                                                                                                          -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   AND NUCLEIC
                                                                                                                                                                              1167
                                                                                                                                                                                                                                                                                                                                                                       1032
                                                                                                                                                                                                                                                                          80
                                                                                                                                                                                                                                                                                                                                        76
                                                                                                                                                                                                                                                                                                                                                                                                     98
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  36
```

```
Ś
                                                                                                                               밁
                                                                                                                                                          Ś
                                                                                                                                                                                                밁
                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    RESULT 17
US-10-176-758-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
   밁
                             5
                                                             밁
                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      В
                                                                                                                                                                                                                                                                                                                                US-10-034-500-2 (1-218) x US-10-176-758-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-176-758-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Sequence 257, Application US/10176758 Publication No. US20030008353A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Smith, Victoria
APPLICANT: Watanabe, Colin K.
APPLICANT: Wood, William I.
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES
TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              FILE REFERENCE: P3430RIC104
CURRENT APPLICATION NUMBER: US/10/176,758
CURRENT FILING DATE: 2002-06-21
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                 1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                   Мо
:
                                                                                                                                                                                                  979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       153
                                                                                                                                                                57
                                                                                                                                                                                                                                 37
                                                                                                                                                                                                                                                                                             17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
GATGAAAGAÁACACACTCATGGCAGGATTACCTACATAT---
                                                             ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                CysVal----
                                                                                                                               ----ACTGTTGAAAATGGATCCTGGGTGGGG 105
                                                                                                                                                              GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                              GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                  GTTCTTGATAAGTCTGGAAGCATGGGG-------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerPheAla----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                             CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                               -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Pan, James
                                                                                                                                                                                                                                                                                                                                                                0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
                                                                                                                                                                                                                                                                                                                                                               Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                               3265
26
55
75
                                                                                              ----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AND
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NUCLEIC
                                                                                                                                                                                               1032
                                                                                                                                                                                                                               56
                                                                                                                                                                                                                                                                                                 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      172
                                                                                                                                                                                                                                                                978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155
```

```
밁
                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Š
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
밁
                                S
                                                                                                    á
                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-063-616-69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                US-10-034-500-2 (1-218) x US-10-063-616-69 (1-3265)
                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                Pred. No.:
                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                   ; ORGANISM: Homo US-10-063-616-69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Sequence 69, Application US/10063616
Publication No. US20030013855A1
GENERAL INFORMATION:
APPLICANT: Baton, Dan L.
APPLICANT: Filvaroff, Ellen
APPLICANT: Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 69
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT: Watanabe, Colin K.

APPLICANT: Wood, William I.

TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Prior Application removed - NUMBER OF SEQ ID NOS: 170
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                CURRENT APPLICATION NUMBER: US/10/063,616
CURRENT FILING DATE: 2002-05-03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     FILE REFERENCE: P3230R1C1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: DNA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1459 GGAAAT 1464
1033 --
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1399 TATGTTTCAGATGAAĞCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1339 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1288 TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               101
                                                                                                                                            952 GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                        37
                                57 GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                            17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GlySer 174
                                                                                                        GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CÄACTCGATGGATCCGAAGTACTGCTGCTGATCTGATGGGGAGGATÄACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Godowski, Paul J.
Grimaldi, Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Gurney, Austin L
                                                                      -GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                      Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                          0.0806
91.50
35.64%
22.77%
8.18%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           --AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             See File Wrapper or
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4
                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                        Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                            Conservative:
---ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Palm
                                                                                                                                                                                                                                                     3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              152
                                                                      1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1227
                                                                                                        56
                                                                                                                                              978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      155
```

```
; SEQ ID NO 257
; LENGTH: 3265
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-175-737-257
                                                                                                            Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          US-10-175-737-257
Sequence 257, Application US/10175737
Publication No. US20030013153A1
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             뮷
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               문
                 Ś
                                                                                                                                                                        Score:
                                                                                                                                                                                           Pred. No.:
                                                                                                                                                                                                           Alignment Scores:
                                                       US-10-034-500-2 (1-218) x US-10-175-737-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Baker, Kevin P.
APPLICANT: Chen, Jian
APPLICANT: Desnoyers, Luc
APPLICANT: Goddard, Audrey
APPLICANT: Godowski, Paul
APPLICANT: Gurney, Austin I
APPLICANT: Pan, James
APPLICANT: Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430R1C50
CURRENT APPLICATION NUMBER: US/10/175,737
CURRENT FILING DATE: 2002-06-19
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1339 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     77
17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36 ::::::|| | | | | | | | | | | | | |
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
||| ::: |||:::|||||||||| :::|||
CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SerPheAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGAAAGAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----AspGlyIleLysMetHisGluThrVallleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Zhang, Zemin
                                                                                                0.0806
91.50
35.64%
22.77%
8.18%
9
                                                                                                            Conservative: Mismatches: Indels:
                                                                                                                                                                      Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ---- 155
```

						_						
CRE (C C C C C C C C C C C C C C C C C C C	음 성	8 8	유 8	유 성	유	B 8	유 상	유	ß 8	В	δ	3
SSULT 20 Sequence publicat: GENERAL: APPLICAN AP	173 1459	156 1399	153 1339	133 1288	116 1228	101 1168	81 1120	77 1060	1033	979	37	952
SULT 20 -09-93-667-378 -09-93-667 -09-93-667-378 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-667 -09-93-67 -09-93-667 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67 -09-93-67	17	156AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAs	ω ທ	.28	11		12	77 CysVal	03 5	79GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTG	37 GluLeu	52 GTTCTTGATAAGTCTGGAAGCATGGGG
Nucle		nSer 1	TTT 1	Val 1 ::: TTG 1	Asn 1	TCC 1	>—≺		GGG 1			9
eic		L72 L458	1398	152	L32 L287	115 1227	100 1167	1119	.059		9, 9	78

		·	
PRIOR	PRIOR	PRIOR	PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR
FILING DATE APPLICATION APPLICATION	RPILING DATE APPLICATION FILING DATE APPLICATION FILING DATE APPLICATION FILING DATE FILING DATE FILING DATE APPLICATION	APPLICATION FILING DATE APPLICATION	APPLICATION FILLING DATE
NUMBER: 60/090540 1998-06-24 NUMMER: 60/090542 1998-06-24 NUMMER: 60/090557 1998-06-24 NUMMER: 60/090676 1998-06-25 NUMBER: 60/090678 1998-06-25 NUMBER: 60/090690 1998-06-25 NUMBER: 60/090690 1998-06-25 NUMBER: 60/090694 1998-06-25	1998-06 NUMBER:	MUMBER: 60 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1 11998-06-1	NUMBER: 60/08887 1998-06-11 1998-06-12 1998-06-16 1998-06-16 1998-06-16 NUMBER: 60/08951 1998-06-16 NUMBER: 60/08951 1998-06-16 1998-06-16 1998-06-17 NUMBER: 60/08953 1998-06-17 NUMBER: 60/08953

CURRENT APPLICATION NUMBER: US/09/93,667
CURRENT APPLICATION NUMBER: 60/049787
PRIOR PRILING DATE: 1997-10-11
PRIOR APPLICATION NUMBER: 60/062250
PRIOR PRILING DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/062511
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/06770
PRIOR PILING DATE: 1997-11-12
PRIOR APPLICATION NUMBER: 60/078910
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-02-25
PRIOR PILING DATE: 1998-03-25
PRIOR PILING DATE: 1998-03-25
PRIOR PILING DATE: 1998-03-25
PRIOR PILING DATE: 1998-03-25
PRIOR PILING DATE: 1998-03-26
PRIOR PILING DATE: 1998-03-26
PRIOR PILING DATE: 1998-05-29
PRIOR PILING DATE: 1998-05-29
PRIOR PILING DATE: 1998-06-07
PRIOR PPLICATION NUMBER: 60/08760
PRIOR PILING DATE: 1998-06-07
PRIOR PPLICATION NUMBER: 60/08760
PRIOR PILING DATE: 1998-06-07
PRIOR PPLICATION NUMBER: 60/08760
PRIOR PILING DATE: 1998-06-07
PRIOR PPLICATION NUMBER: 60/08802
PRIOR PPLICATION NUM

APPLICATION NUMBER: 60/090862 FILING DATE: 1998-06-26

FILING DATE: 1998-06-APPLICATION NUMBER: 60/090696

```
Ş
                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
Query Match:
DB:
• 8
                                             뭣
                                                                        Ś
                                                                                                            밁
                                                                                                                                        δ
                                                                                                                                                                        뮍
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x US-09-993-667-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                   1120
                                               1339
                                                                                                                                                                          1228
                                                                                                                                                                                                                                       1168 GGAACTTCCATCTGCTCTGGÄÄTTÄAÄTATGCATTTCAGGTGÄTTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                               1060
                                                                                                                                                                                                                                                                                                                                                                                                                             1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            No.:
                 156
                                                                                                                                                                                                        116
                                                                                                                                           133
                                                                                                                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                81
                                                                                                                                                                                                                                                                                                                                                                                              77
                                                                                                                                                                                                                                                                                                                                                                                                                                                          57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/091519
APPLICATION NUMBER: 60/091519
APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/091478 FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICATION NUMBER: 60/091360
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/090863
FILING DATE: 1998-06-26
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICATION NUMBER: 60/091544
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                               ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                            CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                        GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GTTCTTGATAAGTCTGGAAGCATGGGG----
                                                                                                                                                                                                                                                                                                   GATGAAAGAACACACTCATGGCAGGATTACCTACATAT------
                                                                                                                              ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                          Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                               GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                             SerPheAla-----
                                                                                                            TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                                                          CAACTCGATGGATCCGAAGTACTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                             CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                ---AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                            -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0.0806
91.50
35.64%
22.77%
8.18%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Conservative: Mismatches:
                                                                                                                                                                                                                                                                                                                                                                                                                           ----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                              ----AlaGlu
                                                                                                                                                                                                                                                                                                   -CCTCTGGGA 1167
                                                                                                            1338
                                                                                                                                                                                                                                       1227
                                                                                                                                                                          1287
                                                                                                                                                                                                                                                                                                                                                                                              80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36
                                                                             155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1032
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               B
                                                                Ś
                                                                                                    밁
                                                                                                                                   S
                                                                                                                                                                      밁
                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                      멍
                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-034-500-2 (1-218) x US-10-063-502-69 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-063-502-69
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-063-502-69
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 170
SEQ ID NO 69
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Sequence 69, Application US/10063502
Publication No. US20030023042A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILE REFERENCE: P3230R1C1
CURRENT APPLICATION NUMBER: US/10/063,502
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: WOOD, WILLIAM I.
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             CURRENT FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           TYPE: DNA ORGANISM: Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           No.:
                                                                                                                                                                      1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  173
 133
                                                                 116
                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                         952 GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                       77
                                                                                                                                                                                                                                                                                                                                       57
                                                                                                                                                                                                                                                                                                                                                                                                         37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlySer
                                                                                                                                                                    GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                  CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                       CysVal-------
                                                                                                                                                                                                                                                                                                                                       GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                    GluLeuAlaLysGluAlaIleLeuLysIleAspAlaAlaMetProLysMetSerTyrGln
ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                  CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                    GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                            -----AspGlyIleLysMetHisGluThrVallleAsnGlnMetProPro 115
                                                                                                                                                                                                                                      ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                        -----GGTANGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Filvaroff, Ellen
Gerritsen, Mary E.
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Godowski, Paul J.
Grimaldi, Christopher
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Watanabe, Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Sapien
                                                                -AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                2002-05-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Conservative: Mismatches: Indels: Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Length:
Matches:
                                                                                                                                                                                                                                                                                                        ---ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          3265
46
26
55
75
                                                                                                                                                                                                                                                                           ----AlaGlu 80
                                                                                                                                                                          1167
                                                                                                                                                                                                                                                                                                                                                                                                           56
                                                                                                                                                                                                                                                                                                                                                                                                                                            978
```

Qy   101
GGAACTTCCATCTGCTTGCAATTNATATATGCATTTCAAGGAACTTCCATCTGCTTGCAATTTCAATTATATATGCATTTCAAGGAACTTCAAGTATTCAAGTATTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCAAGTACTTCATCAAGTACTCATTCTCTCTAACTACTACTCATTCAAGAACCTTCAAGTCTTCTCTCTAACTACTACTCATCAAGACCTCAAGATTCTCTCTC
115 115 115 115 115 115 115 115 115 115

```
RESULT 24
US-10-175-752-257
; Sequence 257, Application US/10175752
; Publication No. US20030022295A1
; Publication No. US20030022295A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뮹
US-10-034-500-2 (1-218) x US-10-175-752-257 (1-3265)
                                                 Best Local s
Query Match:
                                      DB:
                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                            Pred. No.:
                                                                                                                                              Alignment Scores:
                                                                                                                                                                                    US-10-175-752-257
                                                                                                                                                                                                                                    SEQ ID NO 257
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Zhang, Zemin TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430R1C60
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
                                                                                                                                                                                                                                                                           Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                               CURRENT APPLICATION NUMBER: US/10/175,752
CURRENT FILING DATE: 2002-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                            TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           CAACTCGATGGATCCGAAGTACTGCTGACTGACTGGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 122
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Cysval-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GGAAGAĞCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                           Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----AspGlγIleLγsMetHisGluThrValIleAsnGlnMetProPro 115
                                      0.0806
91.50
35.64%
22.77%
8.18%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                   Conservative: Mismatches: Indels:
                                                                                                         Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                155
```

```
Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              뭉
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                US-10-176-482-257; Sequence 257; A)
; TYPE: DNA; Homo Sapien; ORGANISM: Homo Sapien US-10-176-482-257
                                                   Prior Application removed
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                          Sequence 257, Application US/10176482 Publication No. US20030022296A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                        TITLE OF INVENTION: ACIDS ENCODING THE SIFILE REFERENCE: P3430R1C70
CURRENT APPLICATION NUMBER: US/10/176,482
CURRENT FILING DATE: 2002-06-20
                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
                                                                                                                                                                                  TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                             APPLICANT:
                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1168 GGAACTTCCATCTGCTACTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1120 GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       952 GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ProValGluCluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GluLeuAlaLysGluAlaIleLeuLysIleAspAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ------AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                           Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                    Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                          Desnoyers, Luc
                                                                                                                                                                                                                        Zhang, Zemin
                                                                                                                                                                                                                                                                              Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                           See File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                               õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
```

```
Sequence 257, Application US/10176757
Publication No. US20030022297A1
GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
APPLICANT: Chen, Jian
APPLICANT: Desnoyers, Luc
APPLICANT: Goddard, Audrey
APPLICANT: Godowski, Paul J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                   US-10-176-757-257
                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-034-500-2 (1-218) x US-10-176-482-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
             APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
TITLE OF IN
                                                                                                                                                                                                                                                                                                                                                                                                               1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1228
                                                                                                                                                                                                                                                                                                                                                    1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ŏ
                                                                                                                                                                                                                                                                                                                                                                                  156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                                                                                                                                         153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 17
                                                                                                                                                                                                                                                                                               GGAAAT 1464
                                                                                                                                                                                                                                                                                                                         GlySer 174
                                                                                                                                                                                                                                                                                                                                                                               -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                            GGAAGAĞCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                         SerPheAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GATGAAAGAACACACCCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CysVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
F: Zhang, Zemin
INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND
INVENTION: ACIDS ENCODING THE SAME
                                                                                                 Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
Pan, James
                                                      Smith, Victoria
Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        3265
46
26
55
75
                              NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                               172
                                                                                                                                                                                                                                                                                                                                                                                                            1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                36
                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    978
```

```
; FILE REFERENCE: D3430R1C86
; CURRENT APPLICATION NUMBER: US/10/176,757
; CURRENT FILING DATE: 2002-66-20
; Prior Application removed - See File Wrapper
; NUMBER OF SEQ ID NOS: 612
; SEQ ID NO 257
; LENGTH: 3265
; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-176-757-257
                              US-10-176-913-257
Sequence 257, Application US/10176913
Publication No. US20030022298A1
GENERAL INFORMATION:
                                                                                                                                                            Ś
                                                                                                                                                                                               밁
                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                            문
                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                          맑
                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                        문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                      δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-10-176-757-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores: Pred. No.:
APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
                                                                                                                                 1459
                                                                                                                                                                                                                                                                                                                                                                                          1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                             173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
::::::||
                                                                                                                                                             GlySer 174
                                                                                                                                                                                               TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                        CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                         Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CysVal----
                                                                                                                              GGAAAT 1464
                                                                                                                                                                                                                                                             GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                          SerPheAla-----
                                                                                                                                                                                                                                                                                                                           TGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                                                                                                                                                      ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                            -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              See File Wrapper
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    -----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                                           -CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ဝူ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Palm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       100
                                                                                                                                                                                               1458
                                                                                                                                                                                                                                                             1398
                                                                                                                                                                                                                                                                                                                           1338
                                                                                                                                                                                                                                                                                                                                                                                          1287
                                                                                                                                                                                                                                                                                                                                                                                                                         132
                                                                                                                                                                                                                                                                                                                                                                                                                                                        1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    36
                                                                                                                                                                                                                                                                                             155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    978
```

APPLICANT:

```
Ś
                                                                                                                                                          밁
                                                                                                                                                                                        S
                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                  S
                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
Ś
                               밁
                                                           5
                                                                                             밁
                                                                                                                                                                                                                                                       S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x US-10-176-913-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-176-913-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Prior Application removed - See file Wrapper
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
LENGTH: 3265
TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Zhang,Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C66
CURRENT APPLICATION NUMBER: US/10/176,913
CURRENT FILING DATE: 2002-06-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  .
No.:
                                                                                                                                                                                                                                                                                       1168 GGAACTTCCATCTGCTCTĠĠĀATTĀĀATATGCATTTCAGGTĠĀŤTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                      1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1033
                               1399 TATGTTTCAGATGAAĞCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                            1288
                                                                                                                                                                                                                            1228
 173
                                                                                                                             153
                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                       101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      952 GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                    81
                                                                                                                                                                                                                                                                                                                                                                                                                                                 77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         17
                                                                                                                                                                                                                                                                                                                                                                                CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                 CysVal-----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
Glyser 174
                                                                                                                                                            TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                                                                                                         Gln------AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                      GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                             GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                             SerPheAla-----
                                                                                                                                                                                ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Smith, Victoria
Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Goddard, Audrey
                                                           AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                   -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        0.0806
91.50
35.64%
22.77%
8.18%
9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                -----ACTGTTGAAAATGGATCCTGGGTGGGG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              õ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Palm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           978
                                1458
                                                                                             1398
                                                                                                                                                            1338
                                                                                                                                                                                                                                                                                                                                                      1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1032
                                                                                                                                                                                             152
                                                                                                                                                                                                                                                                                                                                                                                                                                                 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         36
                                                                                                                             155
                                                                                                                                                                                                                            1287
```

```
RESULT 28
US-10-180-552-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         皮
                               Ş
                                                                 밁
                                                                                               Ş
                                                                                                                                    밁
                                                                                                                                                                   ş
                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                           Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-10-180-552-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; TYPE: DNA
; ORGANISM: Homo Sapien
US-10-180-552-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence 257, Appublication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQ ID NO 257
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Zhang,Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P9430R1C153
CURRENT APPLICATION NUMBER: US/10/180,552
CURRENT FILING DATE: 2002-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prior Application removed - See File Wrapper NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1459 GGAAAT 1464
                                                                                                                                                                                                                                                                           1060
1288
                                                                                                                                    1168 GGAACTTCCATCTGCTACTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                          1120
                                 133
                                                                                                                                                                      101
                                                                                                                                                                                                                                                                                                                                                                                                                979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  952 GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                           77
                                                                                                                                                                                                                                                                                                                                                                                                                                                37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                               57
                                                                                                                                                                                                                                                                                                           CysVal-----
                            ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                     Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                      CysAlavalAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                         ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
TGTATTGATĠAAĠTĠAAA----
                                                                 CAACTCGATGGATCCGAAGTACTGCTGACTGACTGACTGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                          GATGAAAGAÁACACACTCATGGCAGGATTACCTACATAT-----
                                                                                                                                                                                                                                                                                                                                             -----ACTGTTGAAAATGGATCCTGGGGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                             GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Application US/10180552
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     US20030022300A1
                                                                                                                                                                      -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.0806
91.50
35.64%
22.77%
8.18%
 CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ဝ္ဂ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Palm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   3265
46
26
75
8
                                                                                                                                                                                                          CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                               ---AlaGlu 80
                                                                     1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    978
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      닭
                   ঠ
                                                        밁
                                                                                                                         밁
                                                                                                                                                          ঠ
                                                                                                                                                                                            밁
                                                                                                                                                                                                                             ঠ
                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                ફ
                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                   გ
                                                                                                                                                                                                                                                                                                                                                                                                        US-10-034-500-2 (1-218) x US-10-180-557-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                            Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           RESULT 29
US-10-180-557-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    US-10-180-557-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT: Baker, Kevin P.
APPLICANT: Chen, Jian
APPLICANT: Desnoyers, Luc
APPLICANT: Goddard, Audrey
APPLICANT: Godowski, Paul
APPLICANT: Godowski, Paul
APPLICANT: Gurney, Austin I
APPLICANT: Pan, James
APPLICANT: Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Sequence 257, Appropriate Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   FILE REFERENCE: P3430R1C147
CURRENT APPLICATION NUMBER: US/10/180,557
CURRENT FILING DATE: 2002-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                              1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Хо
:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          153
                       101
                                                                                                                                                                                                                                                                   979
                                                                                                                                                                                                                                                                                                                                    952 GTTCTTGATAAGTCTGGAAGCATGGGG---
                                                                                                                                                            77
                                                                                                                                                                                                                                 57
                                                                                                                                                                                                                                                                                                    37
                                                                                                                                                                                                                                                                                                                                                                       17
                                                                                                                                                                                                                                                                                                                                                              LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                      GATGAAAGAAACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                   CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                       ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                            CysVal-----
                                                                                                                                                                                                                           GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 55
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ------AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          SerPheAla-----
                                                                                                                                                                                                                                                               -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Desnoyers, Luc
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Watanabe, Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Application US/10180557 o. US20030022301A1
--AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                          0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                            -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                        Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative: Mismatches:
                                                                                                                                                        -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                     36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         155
                                                                                                                                                                                                                                                                                                                                    978
```

```
APPLICANT: Zhang, Zemin
TITIE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITIE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C3
CURRENT APPLICATION NUMBER: US/09/990,438
CURRENT FILING DATE: 2001-11-14
PRIOR APPLICATION NUMBER: 60/049787
PRIOR PILING DATE: 1997-06-16
PRIOR FILING DATE: 1997-06-16
PRIOR APPLICATION NUMBER: 60/04250
PRIOR APPLICATION NUMBER: 60/05250
PRIOR FILING DATE: 1997-10-19
PRIOR FILING DATE: 1997-11-12
PRIOR PILING DATE: 1997-11-13
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/065770
PRIOR PILING DATE: 1997-11-24
PRIOR PILING DATE: 1997-11-24
PRIOR PILING DATE: 1997-11-24
PRIOR PILING DATE: 1997-11-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-09-990-438-378
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GENERAL
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sequence 378, A Publication No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Ashkenazi, Avi J. APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1399 TATGTTTCAGATGAAGĆTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1288 TGTATTGATĠĀĀĠTĠĀĀĀ------CĀĀĀGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1228 CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1339 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          133 ProvalGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                               APPLICATION NUMBER: 60/075945
FILING DATE: 1998-02-25
APPLICATION NUMBER: 60/078910
FILING DATE: 1998-03-20
                                         APPLICATION NUMBER: 60/083322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Watanabe, Colin K. Williams, P. Mickey Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Goddard, Audrey
Godowski, Paul J.
Grimaldi, J.Christopher
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Gerber, Hanspeter
Gerritsen, Mary E.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Tumas,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Stewart,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Roy, Margaret Ann
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Kljavin, Ivar J.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Fong, Sherman
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Eaton, Dan L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Botstein, David
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Paoni, Nicholas F.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Application US/09990438 o. US20030027754A1
NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Daniel
                        1998-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Timothy A.
60/084600
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
```

32

PRIOR APPLICATION NUMBER: 60/089553 PRIOR FILING DATE: 1998-06-12 PRIOR PRIOR APPLICATION NUMBER: 60/089901 PRIOR PRIOR PRICING DATE: 1998-06-18 PRIOR PRICING DATE: 1998-06-18 PRIOR PRICING DATE: 1998-06-18 PRIOR PRICING DATE: 1998-06-19 PRIOR PRICING DATE: 1998-06-19 PRIOR PRICING DATE: 1998-06-19 PRIOR APPLICATION NUMBER: 60/089948 PRIOR PRILING DATE: 1998-06-27 PRIOR PRILING DATE: 1998-06-22 PRIOR PRILING DATE: 1998-06-24 PRIOR PRILING DATE: 1998-06-25 PRIOR PRILING DATE: 1998-07-01 PRIOR PRILING DATE: 1998-07-02 PRIOR				
DR APPLICATION NUMBER: 60/089 DR FILING DATE: 1998-06-18 PREPLICATION NUMBER: 60/089 DR APPLICATION NUMBER: 60/089 DR APPLICATION NUMBER: 60/089 DR FILING DATE: 1998-06-19 DR APPLICATION NUMBER: 60/089 DR FILING DATE: 1998-06-19 DR APPLICATION NUMBER: 60/089 DR FILING DATE: 1998-06-19 DR APPLICATION NUMBER: 60/089 DR FILING DATE: 1998-06-29 DR FILING DATE: 1998-06-20 DR FILING DATE: 1998-06-20 DR FILING DATE: 1998-06-22 DR APPLICATION NUMBER: 60/090 DR FILING DATE: 1998-06-23 DR APPLICATION NUMBER: 60/090 DR FILING DATE: 1998-06-23 DR APPLICATION NUMBER: 60/090 DR FILING DATE: 1998-06-23 DR APPLICATION NUMBER: 60/090 DR FILING DATE: 1998-06-24 DR APPLICATION NUMBER: 60/090 DR FILING DATE: 1998-06-25 DR APPLICATION NUMBER: 60/090 DR FILING DATE: 1998-07-02 DR APPLICATION NUMBER: 60/090 DR APPLICATION NUMBER: 60/090 DR FILING DATE: 1998-07				
PILING DATE: 1998-06-19 APPLICATION NUMBER: 60/089 PILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089 PILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089 PILING DATE: 1998-06-19 APPLICATION NUMBER: 60/089 PILING DATE: 1998-06-19 APPLICATION NUMBER: 60/089 PILING DATE: 1998-06-19 APPLICATION NUMBER: 60/089 PILING DATE: 1998-06-29 APPLICATION NUMBER: 60/090 PILING DATE: 1998-06-22 APPLICATION NUMBER: 60/090 PILING DATE: 1998-06-22 APPLICATION NUMBER: 60/090 PILING DATE: 1998-06-23 APPLICATION NUMBER: 60/090 PILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090 PILING DATE: 1998-06-25 APPLICATION NUMBER: 60/090 PILING DATE: 1998-07-02 APPLICATION NUMBER: 60/091		PRIOR	PRIOR	
NUMBER: 60/089 1998-06-18 NUMBER: 60/089 1998-06-18 NUMBER: 60/089 1998-06-19 NUMBER: 60/089 1998-06-19 NUMBER: 60/089 1998-06-19 NUMBER: 60/090 1998-06-29 NUMBER: 60/090 1998-06-22 NUMBER: 60/090 1998-06-24 NUMBER: 60/090 1998-06-25 NUMBER: 60/090 1998-06-26 NUMBER: 60/090 1998-06-25 NUMBER: 60/090 1998-07-02 NUMBER: 60/091 1998-07-02 NUMBER: 60/091 1998-07-02 NUMBER: 60/091 1998-07-02 NUMBER: 60/091	APPLICATI FILING DA APPLICATI	FILING DATE APPLICATION EILING DATE APPLICATION FILING DATE APPLICATION	APPLICATION FILING DATE APPLICATION	PELICATION ILING DATE
	: 1998-06-26 : 1998-06-26 : 1998-06-26 : 1998-07-01 : 1998-07-01 : 1998-07-02 : 1998-07-02 : 1998-07-01 : 1998-07-01 : 1998-07-01 : 1998-07-02 : NUMBER: 60/091	I 1998-06-24 I 1998-06-24 I 1998-06-24 I 1998-06-24 I 1998-06-24 I 1998-06-25	NUMBER: 60/09025 1998-06-23 NUMBER: 60/09035 1998-06-23 NUMBER: 60/09035 1998-06-24 NUMBER: 60/09042 1998-06-24 NUMBER: 60/09044 11998-06-24 NUMBER: 60/09044	NUMBER: 60/089 1998-06-18 1998-06-18 1998-06-18 1998-06-18 NUMBER: 60/089 1998-06-18 NUMBER: 60/089 1998-06-19 NUMBER: 60/089 1998-06-19 NUMBER: 60/089 1998-06-19 1998-06-19 1998-06-22 NUMBER: 60/090

OR APPLICATION NUMBER: 60/087106
OR APPLICATION NUMBER: 60/087607
OR APPLICATION NUMBER: 60/087607
OR APPLICATION NUMBER: 60/087609
OR APPLICATION NUMBER: 60/08021
OR APPLICATION NUMBER: 60/08021
OR APPLICATION NUMBER: 60/08022
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08026
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08028
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08028
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08030
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/08031
OR APPLICATION NUMBER: 60/08031
OR APPLICATION NUMBER: 60/08032
OR APPLICATION NUMBER: 60/08051
OR APPLICATION NUMBER: 60/08051
OR APPLICATION NUMBER: 60/08052
OR APPLICATION NUMBER: 60/08053
OR APPLICATION

PRIOR

PRIOR

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

PRIOR PRIOR PRIOR PRIOR PRIOR

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICANT: APPLICANT:

Napier, Mary A.

APPLICANT:

Grimaldi, J.Christopher Gurney, Austin L. Kljavin, Ivar J.

APPLICANT:

Roy, Margaret Ann Stewart, Timothy

Þ

APPLICANT: APPLICANT:

Paoni Pan, James

Nicholas F

APPLICANT:

APPLICANT: APPLICANT:

Watanabe, Colin K.

P. Mickey

Tumas,

Danie

APPLICANT:

Zhang, Zemin Williams, P. Mick Wood, William I.

Nucleic

APPLICANT: APPLICANT: APPLICANT:

Goddard, Audrey Godowski, Paul Gerritsen, Mary

4 M

```
Percent Similarity:
Best Local Similarity:
Query Match:
DB:
                                                                                                                                                                                                                      문
                                                                                                                                                                                                                                                  δ
                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                             ð
                                                                                                                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                                                                                                                        ક
                                                                                                                                                                                                                                                                                                                                                                                                             В
                                                                                                                                                                                                                                                                                                                                                                                                                                        ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Score:
                                                                                                                                                                        US-09-990-562-378
                                                                                                                                                                                       RESULT 31
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       US-10-034-500-2 (1-218) x US-09-990-438-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alignment
                                                                                                                         Sequence 378, Application US/09990562 Publication No. US20030027985A1 GENERAL INFORMATION:
                APPLICANT:
APPLICANT:
APPLICANT:
                                                           APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
APPLICANT: Botstein, David
APPLICANT: Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
 APPLICANT:
                                                                                                                                                                                                                                                                                   1399
                                                                                                                                                                                                                      1459
                                                                                                                                                                                                                                                                                                                                                1339
                                                                                                                                                                                                                                                                                                                                                                                                              1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Хо
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            116
                                                                                                                                                                                                                                                      173
                                                                                                                                                                                                                                                                                                                                                                               153
                                                                                                                                                                                                                                                                                                                                                                                                                                             133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/091982
FILING DATE: 1998-07-07
APPLICATION NUMBER: 60/092182
FILING DATE: 1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                    GlySer 174
                                                                                                                                                                                                                                                                                   TATGTTTCAGÀTGAAGCTCAGAACAATGGCCTCATTGÀTGCTTTTGGGGCCTCTTACATCÀ 1458
                                                                                                                                                                                                                                                                                                                                              GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT' 1398
                                                                                                                                                                                                                                                                                                                                                                                                              TGTATTGATGAAGTGAAA-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Scores:
                                                                                                                                                                                                                      GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                               SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                            ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                 -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
Fong,Sherman
Gerber,Hanspeter
                           Desnoyers, Luc
Eaton, Dan L.
Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                             CAAAGTGGGGCCATTGTTCATTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                               155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            978
```

TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucl
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730PLC18
CCHERENT PELICATION NUMBER: 60/09787
PRIOR PELICATION NUMBER: 60/09787
PRIOR PELICATION NUMBER: 60/062250
PRIOR APPLICATION NUMBER: 60/062250
PRIOR APPLICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/065186
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/065311
PRIOR APPLICATION NUMBER: 60/066770
PRIOR PILING DATE: 1997-11-12
PRIOR PRICATION NUMBER: 60/066770
PRIOR PILING DATE: 1997-11-24
PRIOR APPLICATION NUMBER: 60/067945
PRIOR PILING DATE: 1997-11-24
PRIOR PILING DATE: 1997-11-24
PRIOR PILING DATE: 1997-11-24
PRIOR PILING DATE: 1999-03-20
PRIOR PILING DATE: 1999-04-20
PRIOR PILING DATE: 1999-06-00
PRIOR PI

PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER: 60/088202 FILING DATE: 1998-06-05 FILING DATE: 1998-06-05

APPLICATION NUMBER: 60/088212 FILING DATE: 1998-06-05 APPLICATION NUMBER: 60/088217

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER: 60/ FILING DATE: 1998-06-10

60/088738 60/088734 60/088655

APPLICATION NUMBER: 60/088742

DATE: 1998-06-10

FILING DATE: APPLICATION FILING DATE:

NUMBER:

APPLICATION

NUMBER:

DATE:

1998-06-1998-06-

PRIOR PRIOR

FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/080826
FILING DATE: 1998-06-10
APPLICATION NUMBER: 60/080858
FILING DATE: 1998-06-11

APPLICATION NUMBER:

APPLICATION NUMBER: 60/088810

1998-06-10

60/088824

FILING

```
밁
                                                                                                                                                                                                   В
                                                                                                                                                                                                                                                                                                     밁
                                                                                                                                                                                                                                                                                                                                                  Ś
                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alignment
Pred. No.:
                                          8
                                                                                                                                              S
                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match:
뭕
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
                                                                                                                                                                                                   1033
1120
                                                                                                 1060
                                                                                                                                                                                                                                                                                                       979
                                                                                                                                                                                                                                                                                                                                                                                                         952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           OR APPLICATION NUMBER: 60/090694
OR FILING DATE: 1998-06-25
OR FILING DATE: 1998-06-25
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090695
OR APPLICATION NUMBER: 60/090696
OR FILING DATE: 1998-06-25
OR APPLICATION NUMBER: 60/090863
OR APPLICATION NUMBER: 60/090863
OR APPLICATION NUMBER: 60/091360
OR APPLICATION NUMBER: 60/091360
OR FILING DATE: 1998-06-26
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091478
OR FILING DATE: 1998-07-01
OR APPLICATION NUMBER: 60/091478
OR APPLICATION NUMBER: 60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                   17
                                                                                                                                                                                                                                                   57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
                                            81
                                                                                                                                                 77
                                                                                                                                                                                                                                                                                                                                                    37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 R FILING DATE:
R APPLICATION N
R FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-25
APPLICATION NUMBER: 60/090690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/090678
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER: FILING DATE: 1998-0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: FILING DATE: 1998-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/091633
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE:
GATGAAAGAAACACTCATGGCAGGATTACCTACATAT-----
                                                                                                                                                                                                                                                                                                                                                  GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                       GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                   LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36
                                          CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                               ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                              CysVal--
                                                                                                                                                                                                                                        GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                     -GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER: 60/090557
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              US-09-990-562-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/091982
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/090676
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090542
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/090535
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/090540
                                                                                                                                                                                                      ------ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
Conservative:
Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             3265
26
55
75
                                                                                                                                                   -AlaGlu
                                                                                                                                                      80
                                                                                                                                                                                                                                                                                                                                                                                                            978
```

PRIOR PRIOR

APPLICATION NUMBER: 60/089908 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089947 FILING DATE: 1998-06-19

FILING DATE: 1998-06-19 APPLICATION NUMBER: 60/090246

1998-06-22

60/090252

APPLICATION NUMBER: 60/089952

APPLICATION NUMBER: 60/089948 FILING DATE: 1998-06-19

PRIOR

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

FILING DATE: 1998-0 APPLICATION NUMBER:

1998-06-23 1998-06-22

60/090349

APPLICATION NUMBER: 60/090254

1998-06-22

FILING DATE: APPLICATION NUMBER: FILING DATE:

APPLICATION NUMBER: APPLICATION NUMBER:

1998-06-23 1998-06-24

FILING

DATE:

4

APPLICATION N FILING DATE: APPLICATION N

FILING DATE:

NUMBER: NUMBER: 60/ : 1998-06-24

60/090444

NUMBER: 60/090445

60/090472

1998-06-24

APPLICATION | FILING DATE:

FILING DATE: APPLICATION NUMBER:

1998-06-24

60/090435 60/090431 60/090429 60/090355 PRIOR PRIOR PRIOR

OR FILING DATE: 1998-06-17

R APPLICATION NUMBER: 60/089653

OR FILING DATE: 1998-06-17

OR APPLICATION NUMBER: 60/089801

OR FILING DATE: 1998-06-18

OR APPLICATION NUMBER: 60/089907

OR APPLICATION NUMBER: 60/089907

OR FILING DATE: 1998-06-18

בייטיושבות: 60/089653 : 1998-06-17

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

R APPLICATION N R FILING DATE: R APPLICATION N

NUMBER: 60/089599

1998-06-17

1998-06-17

NUMBER: 60/089600

PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER:

60/089514

PRIOR PRIOR

DR APPLICATION NUMBER: 60/088861

DR FILING DATE: 1998-06-11

DR APPLICATION NUMBER: 60/08876

DR FILING DATE: 1998-06-11

DR APPLICATION NUMBER: 60/089105

DR FILING DATE: 1998-06-12

DR APPLICATION NUMBER: 60/089440

DR APPLICATION NUMBER: 60/089410

DR FILING DATE: 1998-06-16

DR APPLICATION NUMBER: 60/089512

DR FILING DATE: 1998-06-16

PRIOR

OR FILING DATE: 1998-06-16

OR APPLICATION NUMBER: 60/089532

OR FILING DATE: 1998-06-17

OR APPLICATION NUMBER: 60/089538

OR FILING DATE: 1998-06-17

OR APPLICATION NUMBER: 60/089598

OR FILING DATE: 1998-06-17

PRIOR APPLICATION NUMBER: 60/62250 PRIOR TILING DATE: 1997-10-17 PRIOR APPLICATION NUMBER: 60/065186 PRIOR APPLICATION NUMBER: 60/065311 PRIOR PILING DATE: 1997-11-13 PRIOR PILING DATE: 1997-11-13 PRIOR PILING DATE: 1997-11-24 PRIOR FILING DATE: 1997-11-24 PRIOR APPLICATION NUMBER: 60/075945 PRIOR PILING DATE: 1998-02-25 PRIOR PILING DATE: 1998-03-20 PRIOR FILING DATE: 1998-03-20	CANT: Watanabe, Col CANT: Williams, P. CANT: Williams, P. CANT: Williams, P. CANT: Zhang, Zilliam CANT: Zhang, Zilliam CANT: Zhang, Zerin OF INVENTION: Secre OF INVENTION: Acid REFERENCE: P7730P1C4. NT APPLICATION NUMBER: 2000 APPLICATION NUMBER: PILLING DATE: 2000 APPLICATION NUMBER:	APPLICANT: Fong, Sherman APPLICANT: Gerber, Hanspeter APPLICANT: Gerritsen, Mary E. APPLICANT: Gerdard, Audrey APPLICANT: Goddard, Audrey APPLICANT: Godowski, Paul J. APPLICANT: Grimaldi, J. Christopher APPLICANT: Gurney, Austin L. APPLICANT: Kljavin, Ivar J. APPLICANT: Napier, Mary A. APPLICANT: Napier, Mary A. APPLICANT: Pan, James APPLICANT: Pan, James APPLICANT: Stewart, Timothy A. APPLICANT: Stewart, Timothy A.	Db 1459 GGAAAT 1464  RESULT 32 US-09-997-428-378 US-09-997-428-378 ; Sequence 378, Application US/09997428 ; Publication No. US20030027162A1 ; GENERAL INFORWATION:    APPLICANT: Bakkenazi, Avi J.    APPLICANT: Baker, Kevin P.    APPLICANT: Botstein, David    APPLICANT: Desnoyers, Luc    APPLICANT: Eaton, Dan L.    APPLICANT: Ferrara, Naboleone	Qy       153 SerPheAla	Qy 101
A FI PI	PRIOR PELICATION NUMBER: 60/088826 PRIOR APPLICATION NUMBER: 60/088826 PRIOR APPLICATION NUMBER: 60/08858 PRIOR FILING DATE: 1998-06-11 PRIOR PELICATION NUMBER: 60/088861 PRIOR PELICATION NUMBER: 60/088876 PRIOR PELICATION NUMBER: 60/088876 PRIOR APPLICATION NUMBER: 60/088976 PRIOR APPLICATION NUMBER: 60/089105 PRIOR APPLICATION NUMBER: 60/089440 PRIOR APPLICATION NUMBER: 60/089440	APPLICATION I FILING DATE: APPLICATION I	PRIOR APPLICATION NUMBER: 60/088029 PRIOR FILING DATE: 1998-06-04 PRIOR FILING DATE: 1998-06-04 PRIOR FILING DATE: 1998-06-04 PRIOR APPLICATION NUMBER: 60/088030 PRIOR APPLICATION NUMBER: 60/088033 PRIOR FILING DATE: 1998-06-04 PRIOR FILING DATE: 1998-06-04 PRIOR FILING DATE: 1998-06-05 PRIOR PRIOR PILING DATE: 1998-06-05 PRIOR PILING DATE: 1998-06-05 PRIOR PILING DATE: 1998-06-05 PRIOR APPLICATION NUMBER: 60/088212 PRIOR APPLICATION NUMBER: 60/088212 PRIOR APPLICATION NUMBER: 60/088212	FILING DATE: 1998-0 APPLICATION NUMBER: FILING DATE: 1998-0	PRIOR APPLICATION NUMBER: 60/083322 PRIOR FILING DATE: 1998-04-28 PRIOR APPLICATION NUMBER: 60/084600 PRIOR APPLICATION NUMBER: 60/087106 PRIOR APPLICATION NUMBER: 60/087106 PRIOR FILING DATE: 1998-05-28 PRIOR FILING DATE: 1998-06-02 PRIOR FILING DATE: 1998-06-02 PRIOR FILING DATE: 1998-06-02 PRIOR FILING DATE: 1998-06-02 PRIOR APPLICATION NUMBER: 60/087759 PRIOR APPLICATION NUMBER: 60/087827 PRIOR APPLICATION NUMBER: 60/087827 PRIOR APPLICATION NUMBER: 60/087827

PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER: 60/090252 FILING DATE: 1998-06-22 APPLICATION NUMBER: 60/090254

PRIOR PRIOR PRIOR PRIOR PRIOR

APPLICATION NUMBER: FILING DATE: 1998-06

1998-06-23

60/090349

FILING DATE: 1998-06-22

PRIOR PRIOR

R FILING DATE: 1998-06-19
R APPLICATION NUMBER: 60/089948
R APPLICATION NUMBER: 60/089948
R APPLICATION NUMBER: 60/089952
R APPLICATION NUMBER: 60/089952
R FILING DATE: 1998-06-19
R APPLICATION NUMBER: 60/090246
R FILING DATE: 1998-06-22

PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR PRIOR

FILING DATE: 1998-06-18

APPLICATION NUMBER: 60/089947 APPLICATION NUMBER: 60/089908 PRIOR PRIOR PRIOR

FILING DATE: 1998-06-17 APPLICATION NUMBER:

APPLICATION NUMBER: 60/089801 FILING DATE: 1998-06-18 APPLICATION NUMBER: 60/089907 FILING DATE: 1998-06-18

FILING DATE: APPLICATION FILING DATE:

DATE: 1998-06-17

NUMBER:

1998-06-17

60/089653 60/089600

```
밁
                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                         멍
                                                                                                                                                                                                                                                                                                       멍
                                                                                                                                                                                                                                                                                                                                   á
                                                                                                                                                                                                                                                                                                                                                                  문
                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Вb
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     묽
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             US-10-034-500-2 (1-218)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Alignment Scores: Pred. No.:
                                                                                                                           US-09-997-666-378
                                                                                                                                           RESULT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                          Sequence 378, Application US
Publication No. US2003002716
GENERAL INFORMATION:
APPLICANT: Ashkenazi, Avi J.
APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                APPLICANT:
 APPLICANT:
                                                                                                                                                                          1459
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1033
                                                                                                                                                                                                                                         1399
                                                                                                                                                                                                                                                                                                                                                                                                                                 1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1120
                                                                                                                                                                                                                                                                                                       1339
                                                                                                                                                                                                                                                                                                                                                                  1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                         173
                                                                                                                                                                                                                                                                        156
                                                                                                                                                                                                                                                                                                                                     153
                                                                                                                                                                                                                                                                                                                                                                                                 133
                                                                                                                                                                                                                                                                                                                                                                                                                                                              116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OR APPLICATION NUMBER: 60/091633
OR FILING DATE: 1998-07-02
OR APPLICATION NUMBER: 60/091978
OR APPLICATION NUMBER: 60/091982
OR APPLICATION NUMBER: 60/092182
OR APPLICATION NUMBER: 60/092182
OR APPLICATION NUMBER: 60/092182
OR FILING DATE: 1998-07-09
                                                                                                                                         33
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTCTTGATAAGTCTGGAAGCATGGGG-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                     GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                           ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                               CAACTCGATGGATCCGAAGTACTGCTGACTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Cysval--
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                          GGAAAT 1464
                                                                                                                                                                                                         GlySer 174
                                                                                                                                                                                                                                         TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                     SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                  TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT---
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GlyGlyLeuTyrThrPheAlaProTyrSerVallleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                     -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ---GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                           Baker, Kevin P.
Botstein, David
Desnoyers, Luc
Eaton, Dan L.
                                                                                           Application US/09997666 o. US20030027163A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ---AspGlyIleLysMetHisGluThrVallleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             x US-09-997-428-378 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Mismatches:
Indels:
Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ......
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    978
                                                                                                                                                                                                                                                                                                                                      155
```

PRIOR PRIOR PRIOR PRIOR PRIOR

DR APPLICATION NUMBER: 60/090678
DR FILING DATE: 1998-06-25
DR APPLICATION NUMBER: 60/090690
DR FILING DATE: 1998-06-25
DR APPLICATION NUMBER: 60/090694
DR FILING DATE: 1998-06-25
DR APPLICATION NUMBER: 60/090695

PRIOR PRIOR PRIOR

FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090557 FILING DATE: 1998-06-24

APPLICATION NUMBER: 60/090540 FILING DATE: 1998-06-24

APPLICATION NUMBER: 60/090542

APPLICATION NUMBER: 60/090676 FILING DATE: 1998-06-25

PRIOR

FILING DATE: APPLICATION FILING DATE

APPLICATION

NUMBER: 60/090535 NUMBER: 60/090472 NUMBER: 60/090445

1998-06-24

1998-06-24

FILING DATE: APPLICATION

1998-06-24

PRIOR PRIOR PRIOR

FILING DATE: 1998-06-24 APPLICATION NUMBER: 60/090444 FILING DATE: 1998-06-24

APPLICATION NUMBER: 60/090431 FILING DATE: 1998-06-24

FILING DATE:

1998-06-24

FILING DATE: 1998-06-23 APPLICATION NUMBER: 60/090429 APPLICATION NUMBER: 60/090355

APPLICATION NUMBER:

60/090435

PRIOR PRIOR

PRIOR

APPLICATION NUMBER: 60/090696 FILING DATE: 1998-06-25 FILING DATE: 1998-06-

FILING DATE: 1998-06-26 APPLICATION NUMBER:

60/090862

FILING DATE: 1998-07-01 APPLICATION NUMBER: 60/091478 FILING DATE: 1998-07-02

APPLICATION NUMBER: 60/091360 APPLICATION NUMBER: 60/090863 FILING DATE: 1998-06-26

APPLICATION NUMBER: 60/091519 FILING DATE: 1998-07-02

FILING DATE:

APPLICATION NUMBER: 60/091544

1998-07-01

0

```
CURRENT APPLICATION NUMBER: US/09/997,666
CURRENT FILING DATE: 2001-11-15
PRIOR APPLICATION NUMBER: 60/049787
PRIOR FILING DATE: 1997-06-16
PRIOR APPLICATION NUMBER: 60/062250
PRIOR FILING DATE: 1997-10-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Zhang, Zemin
TITLE OF INVENTION: Secreted and Transmembrane Polypeptides and Nucleic
TITLE OF INVENTION: Acids Encoding the Same
FILE REFERENCE: P2730P1C42
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   PPLICANT:
      OR APPLICATION NUMBER: 60/088028
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088029
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088030
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088033
OR FILING DATE: 1998-06-04
OR APPLICATION NUMBER: 60/088036
OR APPLICATION NUMBER: 60/088326
OR APPLICATION NUMBER: 60/088326
OR APPLICATION NUMBER: 60/088167
OR APPLICATION NUMBER: 60/088202
OR APPLICATION NUMBER: 60/088202
OR APPLICATION NUMBER: 60/088202
OR APPLICATION NUMBER: 60/088202
                                                                                                                                                                                                                                                                                                           OR APPLICATION NUMBER: 60/084600
OR FILING DATE: 1998-05-07
OR APPLICATION NUMBER: 60/087106
OR APPLICATION NUMBER: 60/087607
OR APPLICATION NUMBER: 60/087607
OR APPLICATION NUMBER: 60/087607
OR APPLICATION NUMBER: 60/087609
OR APPLICATION NUMBER: 60/087759
OR APPLICATION NUMBER: 60/087759
OR APPLICATION NUMBER: 60/087827
OR APPLICATION NUMBER: 60/088021
OR APPLICATION NUMBER: 60/088021
OR APPLICATION NUMBER: 60/088025
OR APPLICATION NUMBER: 60/088025
OR APPLICATION NUMBER: 60/088025
OR APPLICATION NUMBER: 60/088025
OR APPLICATION NUMBER: 60/088026
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             OR APPLICATION NUMBER: 60/049787
OR FILING DATE: 1997-06-16
OR APPLICATION NUMBER: 60/062250
OR PILING DATE: 1997-10-17
OR APPLICATION NUMBER: 60/065186
OR FILING DATE: 1997-11-12
OR APPLICATION NUMBER: 60/065311
OR APPLICATION NUMBER: 60/066770
OR FILING DATE: 1997-11-13
OR APPLICATION NUMBER: 60/066770
OR FILING DATE: 1997-11-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            R APPLICATION NUMBER: 60,
R FILING DATE: 1998-02-2:
R APPLICATION NUMBER: 60,
R FILING DATE: 1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: FILING DATE: 1998-04
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Stewart, in Stewart, Inc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Watanabe, Colin K.
Williams, P. Micke
Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Paoni
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Fong, Sherman
Gerber, Hanspeter
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Pan,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Grimaldi, J. Christopher Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Napier, Mary A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Kijavin, Ivar
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Gerritsen, Mary
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ferrara, Napoleone
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ni, Nicholas F.
, Margaret Ann
wart, Timothy A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-04-28
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-03-20
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Mickey
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  ٦
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ٔ ب
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           60/083322
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/078910
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/075945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   М
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ×
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                PRIOR PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
OR PELICATION NUMBER: 60/089653
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089801
OR PELIUNG DATE: 1998-06-18
OR APPLICATION NUMBER: 60/089907
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089907
OR PILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/089947
OR APPLICATION NUMBER: 60/089947
OR APPLICATION NUMBER: 60/089948
OR FILING DATE: 1998-06-19
OR APPLICATION NUMBER: 60/090246
OR FILING DATE: 1998-06-22
OR FILING DATE: 1998-06-22
OR APPLICATION NUMBER: 60/090254
OR APPLICATION NUMBER: 60/090254
OR APPLICATION NUMBER: 60/090254
OR APPLICATION NUMBER: 60/090355
OR FILING DATE: 1998-06-22
OR APPLICATION NUMBER: 60/090355
OR APPLICATION NUMBER: 60/090355
OR APPLICATION NUMBER: 60/090429
OR APPLICATION NUMBER: 60/090435
OR APPLICATION NUMBER: 60/090444
OR APPLICATION NUMBER: 60/090444
OR APPLICATION NUMBER: 60/090444
OR APPLICATION NUMBER: 60/090444
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R APPLICATION NUMBER: 6
R FILLING DATE: 1998-06
R APPLICATION NUMBER: 6
R FILLING DATE: 1998-06-
R APPLICATION NUMBER: 6
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              PR FILING DATE: 1998-06

PR APPLICATION NUMBER: 6

PR FILING DATE: 1998-06

PR FILING DATE: 1998-06

PR FILING DATE: 1998-06

PR APPLICATION NUMBER: 6
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
R APPLICATION NUMBER: 6
R FILING DATE: 1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  R FILING DATE:
R APPLICATION N
R FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06
APPLICATION NUMBER:
FILING DATE: 1998-06
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/088861
FILING DATE: 1998-06-11
APPLICATION NUMBER: 60/088876
FILING DATE: 1998-06-11
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE:
APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          FILING DATE: 1998-06-05
APPLICATION NUMBER: 60/
FILING DATE: 1998-06-09
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/089538
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                NUMBER: 60/088738
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              иольек: 60/089653
1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            NUMBER: 60/089600
1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1998-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-16
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1998-06-1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1998-06-10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1998-06-05
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    60/089598
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/089514
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/089512
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            60/089599
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 60/089532
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        60/089440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/089105
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       60/088858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   60/088826
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/088824
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  60/088810
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         60/088734
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     60/088217
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          60/088742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               60/088655
```

FILING DATE: 1998-00 APPLICATION NUMBER:

60/090540 60/090535

APPLICATION NUMBER:

APPLICATION NUMBER: 60/090472 APPLICATION NUMBER: 6 FILING DATE: 1998-06-

60/090445

1998-06-24 1998-06-24

```
Best Local Similarity:
Query Match:
DB:
                                                        밁
                                                                                  Ś
                                                                                                                                         Ś
                                                                                                                                                                                                   Ś
문
                        Ş
                                                                                                                밁
                                                                                                                                                                         В
                                                                                                                                                                                                                                 US-10-034-500-2 (1-218) x US-09-997-666-378 (1-3265)
                                                                                                                                                                                                                                                                                                                     Score:
                                                                                                                                                                                                                                                                                                                                                   Alignment
                                                                                                                                                                                                                                                                                                       Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR
PRIOR
PRIOR
PRIOR
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            PRIOR
PRIOR
                                                      1033
1060 ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                      No.:
                                                                                                                  979
                                                                                                                                                                         952
                                                                                                                                            37
                           77
                                                                                     57
                                                                                                                                                                                                    17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090557
FILING DATE: 1998-06-24
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/090863
FILING DATE: 1998-06-26
APPLICATION NUMBER: 60/091360
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090696
FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090678 FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE: 1998-06-24
APPLICATION NUMBER: 60/090542
                                                                                                                                                                                                                                                                                                                                                                               FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICATION NUMBER: 60/091633
FILING DATE: 1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091626
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           FILING DATE: 1998-07-02
APPLICATION NUMBER: 60/091544
FILING DATE: 1998-07-01
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/090862
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICATION NUMBER: 60/090695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/090690
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        FILING DATE: 1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/090676
                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: 60/091982 FILING DATE: 1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICATION NUMBER: 60/091978
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICATION NUMBER: 60/091519
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICATION NUMBER: 60/091478
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICATION NUMBER: 60/090694
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                      FILING DATE:
                                                                                                                                                                                                                                                                                                                                                   Scores:
                           CysVal----
                                                                                   GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                            GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                         GTTCTTGATAAGTCTGGAAGCATGGGG----
                                                                                                                ----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                               NUMBER: 60/092182
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1998-06-25
                                                                                                                                                                                                                                                                                                                                                                                1998-07-09
                                                                                                                                                                                                                                                                                                                                                                                                                                         1998-07-07
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-07-02
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1998-06-25
                                                                                                                                                                                                                                                               0.0806
91.50
35.64%
22.77%
8.18%
9
                                                                                                                                                                                                                                                                            Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                     Matches:
                                                                                                                                                                                                                                                                                                         Conservative:
                                                        -ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                               3265
46
26
55
75
                           -----AlaGlu 80
                                                                                                                  1032
                                                                                                                                                                                                       36
                                                                                                                                                                          978
```

```
S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-173-700-257
              S
                                             밁
                                                                          S
                                                                                                                                                                  Percent Similarity:
Best Local Similari
                                                                                                        US-10-034-500-2 (1-218) x US-10-173-700-257 (1-3265)
                                                                                                                                                                                                   Score:
                                                                                                                                                                                                                Pred. No.:
                                                                                                                                                                                                                              Alignment Scores:
                                                                                                                                                                                                                                                            US-10-173-700-257
                                                                                                                                                    Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence 257, Application US/10173700 Publication No. US20030027262A1 GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                     Prior Application removed
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                                         LENGTH: 3265
TYPE: DNA
ORGANISM: Homo
                                                                                                                                                                                                                                                                                                                                                               FILE REFERENCE: P3430R1C14
CURRENT APPLICATION NUMBER: US/10/173,700
CURRENT FILING DATE: 2002-06-17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES TITLE OF INVENTION: ACIDS ENCODING THE SAME
                                                                                                                                                                                                                                                                                                                                                                                                                                              APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1228 CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                156
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  133 ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                             952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       81
               37
                                                                          17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GATGAAAGAACACACTCATGGCAGGATTACCTACATAT------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
GTTCTTGATAAGTCTGGAAGCATGGGG----
                                                                        LeuValAspTyrSerGlySerMetMetHysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                    Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Smith, Victoria Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Desnoyers, Luc
Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                                                                                                                             Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Chen, Jian
                                                                                                                                                                                                                                                                            Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                      0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                    See File Wrapper or
                                                                                                                                                                                  Length:
Matches:
Conservative:
                                                                                                                                                       Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                      Palm
                                                                                                                                         3265
46
26
55
75 .
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                   AND
                                                                                                                                                                                                                                                                                                                                                                                                                                   NUCLEIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               155
                  56
                                                  978
```

Ü

```
RESULT 35
US-10-174-572-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      뭐
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                   US-10-174-572-257
                                                                                                                                 SEQ ID NO 257
LENGTH: 3265
TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             GENERAL INFORMATION
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sequence 257, Appropriate Publication No.
                                                                                                                                                                                                                                                                                                                      APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT:
                                                                                                                                                                                                  TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME FILE REFERENCE: P3430R1C40
CURRENT APPLICATION NUMBER: US/10/174,572
CURRENT FILING DATE: 2002-06-18
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                       APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1288
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      1228
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1168
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               1033
                                                                    8
0
::
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           81
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA 1458
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   CAACTCGATGGATCCGAAGTACTGCTGCTGACTGACTGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CysVal-----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    SerPheAla-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              -----GTTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                   Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                        Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                    Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                            Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                         Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Application US/10174572
o. US20030027263A1
0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                 Length:
Matches:
               Conservative: Mismatches:
 Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  155
```

```
밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   片
                                                                                                                                                                                                                                                                                                                                                                                                                                   RESULT 36
US-10-174-579-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            δ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              문
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              BB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         US-10-034-500-2 (1-218) x US-10-174-572-257 (1-3265)
           APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C31
CURRENT APPLICATION NUMBER: US/10/174,579
CURRENT FILING DATE: 2002-06-18
Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                             Sequence 257, Application US/10174579 Publication No. US20030027264A1
                                                                                                                                                                   APPLICANT:
APPLICANT:
                                                                                                                                                                                                                          APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                               APPLICANT:
                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                   APPLICANT:
                                                                                                                                                                                                                                                                                                                                          APPLICANT:
                                                                                                                                                                                                        APPLICANT:
LENGTH: 3265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1120
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1459 GGAAAT 1464
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1033
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               173 GlySer 174
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                133 ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          81 CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CysVal----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     -----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAÄGCÄGCAAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       SerPheAla------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                           Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                 Smith, Victoria
Watanabe, Colin K.
Wood, William I.
                                                                                                                                                                                                                                                                                                                                          Chen, Jian
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----ACTGTTGAAAATĠĠATĊĊTĠĠGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ----CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ----AlaGlu
                                                                                                                                                   AND NUCLBIC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       1287
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  978
```

```
Percent Similarity:
Best Local Similarity:
Query Match:
                                                                                                                                                                                                                                                                                                                                      á
                                                                                                                                                                                                                                                                                                                                                                    밁
                                                                                                                                                                                                                                                                                                                                                                                               Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                             Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ð
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           В
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Ş
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                맑
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        á
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           ; TYPE: DNA
; ORGANISM: Homo
US-10-174-579-257
                                                                                                                                                                                                 RESULT 37
US-10-174-582-257
                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                          á
                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-034-500-2 (1-218) x US-10-174-579-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Alignment Scores:
                                                                                                                                                                   Sequence 257, Application US/10174582 Publication No. US20030027265A1
                                                                                                                                                        GENERAL INFORMATION:
                                             APPLICANT:
APPLICANT:
APPLICANT:
               APPLICANT:
                                                                                                                        APPLICANT: Baker, Kevin P. APPLICANT: Chen, Jian
   APPLICANT
                                                                                          APPLICANT:
                                                                                                           APPLICANT:
                                                                                                                                                                                                                                                1459
                                                                                                                                                                                                                                                                                                                                                                      1339
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        1033
                                                                                                                                                                                                                                                                                                           1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1228 CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGGAGGATAACACTGCAAGTTCT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                133
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          116
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               952
                                                                                                                                                                                                                                                                             173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              18
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   -----GGTÄÄGGACCGCCTAAATCGAATGÄÄTCAAGCÄGCAAAACATTTCCTGCTGCÄG 1032
                                                                                                                                                                                                                                                                                                                                                                      GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                                                                                                                                                                  TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT----
                                                                                                                                                                                                                                               GGAAAT 1464
                                                                                                                                                                                                                                                                             GlySer 174
                                                                                                                                                                                                                                                                                                           TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTTGGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                    SerPheAla-----
                                                                                                                                                                                                                                                                                                                                      -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
Godowski, Paul J.
Gurney, Austin L.
Pan, James
Smith, Victoria
Watanabe, Colin K.
Wood, William I.
                                                                                           Goddard, Audrey
                                                                                                          Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               -----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.0806
91.50
35.64%
22.77%
8.18%
9
                 <u>۲</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ------CCTCTGGGA 1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3265
26
75
8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 978
                                                                                                                                                                                                                                                                                                           1458
                                                                                                                                                                                                                                                                                                                                                                       1398
                                                                                                                                                                                                                                                                                                                                                                                                                                  1338
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1227
                                                                                                                                                                                                                                                                                                                                                                                                     155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1287
```

```
Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
RESULT 38
US-10-174-588-257
; Sequence 257, Application US/10174588
; Publication No. US20030027266A1
; GENERAL INFORMATION:
                                                                                                                                                                             밁
                                                                                                                                                                                                            Ş
                                                                                                                                                                                                                                                문
                                                                                                                                                                                                                                                                               S
                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                    á
                                                                                                                                                                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                                                                                                                                                                        S
                                                                                                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-10-174-582-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 US-10-174-582-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C36
CURRENT APPLICATION NUMBER: US/10/174,582
CURRENT FILING DATE: 2002-06-18
Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
LENGTH: 3265
TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICANT:
                                                                                                           1459
                                                                                                                                                                                                                                                                                                                     1288
                                                                                                                                                                           1399 TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1120 GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT-------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         952 GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                          173
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             979
                                                                                                                                                                                                                                                                                   153
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      82
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   17
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln
                                                                                                                                          GlySer 174
                                                                                                                                                                                                                                                                                                                     TGTATTGATGAAGTGAAA------CAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338
                                                                                                                                                                                                                                                                                                                                           ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                                                                                                                                                                                                               Gln-----AlaAlaValIIeLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GGTÄÄĞGACCGCCTAPATCGAATGÄÄTCAAĞCÄGCAPAACATTTCCTGCTGCÄĞ
                                                                                                         GGAAAT 1464
                                                                                                                                                                                                                                                GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT
                                                                                                                                                                                                                                                                                   SerPheAla------
                                                                                                                                                                                                                                                                                                                                                                                         CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                             -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Zhang, Zemin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ----AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Length:
Matches:
Conservative:
Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Gaps:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           -----AlaGlu
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         3265
46
26
55
75
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1032
                                                                                                                                                                                                                                                                                      155
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1167
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  56
                                                                                                                                                                                                                                                    1398
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    978
```

```
Ś
 밁
                               δ
                                                                                                          8
                                                                                                                                                  문
                                                                                                                                                                                   S
                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                            S
                                                                                                                                                                                                                                                                                                      밁
                                                                                                                                                                                                                                                                                                                                   S
                                                                                                                                                                                                                                                                                                                                                                               밁
                                                                                                                                                                                                                                                                                                                                                                                                              S
                                                                                                                                                                                                                                                                                                                                                                                                                                                        밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                გ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     용
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ફ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            US-10-034-500-2 (1-218) x US-10-174-588-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Alignment Scores:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Percent Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        US-10-174-588-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT: Baker, Kevin P.
APPLICANT: Chen, Jian
APPLICANT: Desnoyers, Luc
APPLICANT: Goddard, Audrey
APPLICANT: Godowski, Paul
APPLICANT: Gurney, Austin 1
APPLICANT: Pan, James
APPLICANT: Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Prior Application removed - See File Wrapper
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 257
LENGTH: 3265
TYPE: DNA
ORGANISM: Homo Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     APPLICANT:
APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C28
CURRENT APPLICATION NUMBER: US/10/174,588
CURRENT FILING DATE: 2002-06-18
1399
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     1033
                                                                         1339
                                                                                                                                                    1288
                                                                                                                                                                                                                             1228
                                                                                                                                                                                                                                                                                                                                                                               1120
                                                                                                                                                                                                                                                                                                    1168 GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                                                                                                                                                                                                                                                                                                            1060
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   М
:
                                     156
                                                                                                              153
                                                                                                                                                                                                                                                                116
                                                                                                                                                                                                                                                                                                                                           101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              979
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       952
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               77
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                37
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle ::::::|
                                                                                                                                                                                                                                                                                                                                                                                                                    81
                                                                                                                                                TGTATTGATGAAGTGAAA-----CAAAGTGGGGCCATTGTTCATTTATTGCTTTG 1338
                                                                                                                                                                             ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                                                                                                                                         CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                  Gln-----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                         ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 1:5
                                                                                                                                                                                                                                                                                                                                                                               GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA 1:67
                                                                                                                                                                                                                                                                                                                                                                                                                CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                                                                                                                                                                                                                                      ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAAGCAGT 1:19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Сувча1----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer 76
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAAACATTTCCTGCTGCAG 1032
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     GTTCTTGATAAGTCTGGAAGCATGGGG------
TATGTTTCAGATGAAGCTCAGAACAATGGCCTCATTGATGCTTTTGGGGCTCTTACATCA 1458
                                                                       GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCAAGATAACAGGAGGAAGTCATTTT 1398
                                                                                                              SerPheAla-----
                                 -----AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaLeuAsnSer 172
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Godowski, Paul J. Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Watanabe, Colin K. Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Goddard, Audrey
Godowski, Paul
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Smith, Victoria
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Mismatches:
Indels:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Conservative:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       q
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Palm
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       978
```

```
á
                                   문
                                                              δ
                                                                                                     밁
                                                                                                                                   S
                                                                                                                                                                       멹
                                                                                                                                                                                                     Ś
                                                                                                                                                                                                                                         밁
                                                                                                                                                                                                                                                                       á
                                                                                                                                                                                                                                                                                                          밁
                                                                                                                                                                                                                                                                                                                                         Ś
                                                                                                                                                                                                                                                                                                                                                                            밁
                                                                                                                                                                                                                                                                                                                                                                                                            Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                밁
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                S
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Percent Similarity:
Best Local Similarity:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          RESULT 39
US-10-175-739-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             8
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ঠ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  US-10-034-500-2 (1-218) x US-10-175-739-257 (1-3265)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Query Match:
DB:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Alignment Scores: Pred. No.:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US-10-175-739-257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Sequence 257, Application US/10175739 Publication No. US20030027267A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           SEQ ID NO 257
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  APPLICANT:
APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C46
CURRENT APPLICATION NUMBER: US/10/175,739
CURRENT FILING DATE: 2002-06-19
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Prior Application removed - See File Wrapper or Palm
NUMBER OF SEQ ID NOS: 612
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        APPLICANT:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Baker, Kevin P.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         TYPE: DNA
ORGANISM: Homo
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           LENGTH:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1459 GGAAAT 1464
                                     1228
                                                                                                                                                                                                                                                                                                            1033 -----ACTGTTGAAAATGGATCCTGGGTGGGG 1059
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             173
                                                                                                                                                                                                                                                                                                                                                                                                                                                  952 GTTCTTGATAAGTCTGGAAGCATGGGG------
                                                                                                                                                                                                          81
                                                                                                                                                                                                                                                                                                                                                                                                                37
                                                                                                                                                                                                                                                                          77
                                                                                                                                                                                                                                                                                                                                              57
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                17 LeuValAspTyrSerGlySerMetMetMetLysHisValAlaValArgGluProLysIle 36
                                                                                                                                                                                                     CysAlaValAsnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100
                                                                                                                                                                                                                                         ATGGTTCACTTTGATAGTACTGCCACTATTGTAAATAAGCTAATCCAAATAAAAAGCAGT 1119
                                                                                                                                                                                                                                                                          CysVal-----
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Glyser 174
ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152
                                                                                                     GGAACTTCCATCTGCTCTGGAATTÄAÄTATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227
                                                                                                                                                                       GATGAAAGAAACACACTCATGGCAGGATTACCTACATAT------CCTCTGGGA
                                                                                                                                                                                                                                                                                                                                            GlyGlyLeuTyrThrPheAlaProTyrSerValIleIleProGlnGlySerTrpAsnSer
                                                                                                                                                                                                                                                                                                                                                                                                              GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAetProLysMetSerTyrGln
                                   CAACTCGATGGATCCGAAGTACTGCTGCTGACTGATGGGGAGGATAACACTGCAAGTTCT 1287
                                                                                                                                                                                                                                                                                                                                                                                -----GGTAAGGACCGCCTAAATCGAATGAATCAAGCAGCAAAACATTTCCTGCTGCAG
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           3265
                                                                                                                                   ------AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Smith, Victoria Watanabe, Colin K.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Pan, James
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Desnoyers, Luc
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Wood, William I.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Chen, Jian
                                                                   ----AlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Sapien
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     0.0806
91.50
35.64%
22.77%
8.18%
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Conservative: Mismatches: Indels:
                                                                                                                                                                                                                                                                            -----AlaGlu 80
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Length:
Matches:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    3265
46
26
55
75
                                                                                                                                                                       1167
                                                                                                                                                                                                                                                                                                                                                                                1032
                                                                                                                                                                                                                                                                                                                                              76
                                                                                                                                                                                                                                                                                                                                                                                                                56
                                                                                                                                                                                                                                                                                                                                                                                                                                                    978
```

F.

B 정	유 성	용 성	용 성	g &	us-	Ali Pre Sco Per Bes Que DB:	Qy Qy Qy Db	
81 CysalaValasnThrIleLysSerAspLeuGluIlePheGlyArgLeuThrProValGly 100	77 CysValAlaGlu 80	GlyGlyLeuTyrThrPheAlaProTyrSerVall1eIleProGlnGlySerTrpAsnSer 7	37 GluLeuAlaLysGluAlaIleLeuLysIleAsnAlaAlaMetProLysMetSerTyrGln 56	17 LeuValAspTyrSerGlySerMetMetLysHisValAlaValArgGluProLysIle 36 ::::::	-10-034-500-2 (1-218) x US-10-175-740-257 (1-3265)	Alignment Scores:  O.0806  Iength:  Oxore:  91.50  Matches:  46  Conservative: 26  Percent Similarity: 35.648  Best Local Similarity: 22.778  Puery Match:  8.188  Gaps:  Best Formula	TGTATTGATGAAA	

В	Ş	망	γQ	Db	Ş	В	80	ДЪ	Qy	ДЬ	γQ
1459	173	1399	156	1339	153	1288	133	1228	116	1168	101
GGARAT 1464	GlySer 174	AACAATGGG	AspAspAlaGluGlyLysAlaIleIleAspGlnIleValAlaIeuAsnSer 172	1339 GGAAGAGCTGCTGATGAAGCAGTAATAGAGATGAGCCAAGATAACAGGAGGAAGTCATTTT 1398	SerPheAla 155	TGTATTGATGAAGTGAAACAAAGTGGGGCCATTGTTCATTTTATTGCTTTG 1338	ProValGluGluValLysSerIleTyrGlnThrAsnProAsnValCysPheHisValVal 152	CAACTCGATGGATCCGAAGTACTGCTGACTGACTGGATGGGGAGGATAACACTGCAAGTTCT 1287	GlnAlaAlaValIleLeuLeuThrAspGlyHisAsnAsnLeuGlyMetAsn 132	GGAACTTCCATCTGCTCTGGAATTAAATATGCATTTCAGGTGATTGGAGAGCTACATTCC 1227	AspGlyIleLysMetHisGluThrValIleAsnGlnMetProPro 115

Search completed: April 8, 2003, 06:50:41 Job time: 124 secs